

JPRS-UHR-84-011

6 June 1984

USSR Report

HUMAN RESOURCES

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LABOR

LABOR OFFICIAL RESPONDS TO QUESTIONS ON SHCHEKINO METHOD

Moscow EKONOMICHESKAYA GAZETA in Russian No 49, Dec 83 p 6

[Article by Nikolay Pavlovich Aparin, deputy chairman of USSR Council of Ministers State Committee for Labor and Social Problems: "On Spreading the Shchekino Method of Increasing Production Volume With Fewer Personnel"]

[Text] In the editorial mail often there are questions on the use of methods in various branches of the economy to stimulate the fulfillment and overfulfillment of plan targets with fewer personnel.

"What are the actual obstacles hindering the spread of the Shchekino method?" a reader asks. "What should be done in order to use its advantages completely? What new forms of stimulating work with fewer personnel are used in the economy?"

At the request of the editorial staff, deputy chairman of the USSR Council of Ministers State Committee on Labor and Social Problems, Nikolay Pavlovich Aparin, will answer the readers' questions.

The introduction of progressive methods of stimulating the fulfillment and overfulfillment of work quotas with fewer personnel plays an important part in solving problems posed by the 26th Party Congress, the November (1982) and the June (1983) CPSU Central Committee Plenums on increasing production efficiency and accelerating the growth of labor productivity. To these ends, and taking into account each sector's special characteristics, the experience of the Shchekino chemical workers is being applied, as well as that of the Volga automobile plant, the Dnepropetrov combine, new forms of brigade organization of labor and wages and other methods, the use of which aids in improving the relationship between the ratio of growth in labor productivity and wages.

The Shchekino Method

The Shchekino chemical workers' method has found broad application. According to data of the USSR Central Statistical Administration, in industry in 1982, this method and its basic elements were applied by enterprises in which 70

percent of all industrial and manufacturing personnel were employed. Last year alone, in actual production these enterprises economized on the labor of almost a quarter of a million persons, and more than 400 million rubles was saved in the wage fund. From the savings, the workers were encouraged materially to combine occupations (duties), to broaden their service zones, to develop and carry out measures which would ensure a decrease in the number of workers and an increase in labor productivity in comparison with the plan.

Approximately 1.4 million persons, or more than 10 percent of the hourly workers, engineers and industrial manufacturing personnel received payment for combining occupations (duties) and broadening the service zone. While the average payment for industry was 21-24 rubles, the highly skilled workers who accept a supplementary volume of work receive approximately 30-45 rubles, and taking into account bonus payments, earned up to 40-60 rubles per month. Thus, workers who achieved higher labor productivity, received appreciably higher earnings.

With the adoption of the 4 December 1981 resolution by the USSR Council of Ministers, "On Procedures and Conditions for Combining Occupations (Duties)," the laws for establishing additional payment for combining occupations, broadening service zones or increasing the volume of work undertaken have been significantly broadened. In practical terms, additional payment may be established for the worker and junior staff personnel of all sectors of the economy, as well as for engineering and technical staff and office workers (with the exception of those employed in organs of a state or economic administration or scientific research institutions).

Thus, the Shchekino method and its basic elements have become component parts of the economic mechanism. They have served as the basis for the development of other progressive forms and methods of organization and payment for labor.

The Experiment at the Volga Automobile Plant and the Dnepropetrov Combine

As a result of carrying out devised measures, the Volga Automobile Plant [VAZ] was transformed into a well ordered mechanism. Here, at the factory, the periods for assimilation of production capacity and achieving planned labor consumption of manufactured items has been shortened considerably.

One of the features of the comprehensive system used at VAZ is a new approach to the organization and payment for workers' labor. The labor payment system effectively stimulates workers to reduce their labor expenditure, assimilate adjacent occupations and operations and raise the quality of work completed.

The operational experience of enterprises which have adopted the VAZ system supports its high effectiveness. The Ashinskiy Metallurgical Plant, the Kursk tannery, the Sevastopol fish cannery subsidiary of the "Atlantik" association are operating successfully.

The progressive experiment has been introduced already at 60 enterprises of 23 ministries, which employ more than 400,000 persons. In 1982, the growth in production volume for these enterprises was achieved practically solely because of the growth in labor productivity.

The experiment at the Dnepropetrov Combine imeni K. Ye. Voroshilov is worth noting and emulating; they are systematically certifying job slots with the goal of increasing their organizational and technical level and reducing the number of job slots which do not correspond to the needs of scientifically organized labor.

As a result of conducting the operation in a planned manner, by certifying job slots, the plant collective for the last 3 years has ensured a growth in production volume of 30 percent, in labor productivity--35 percent, and in average wages--10 percent. There has been a reduction of 567 job slots, and the labor of approximately 300 workers has been economized. In conjunction with reducing the number of job slots, 454 units of equipment have been dismantled and sold, freeing two thousand square meters of production area. All this speaks positively for the growth rates of the fund returns and the reduction in the number of personnel.

The Diversified Machine Tool Service

The development of the diversified machine tool service aids in the operational procedure of paying for labor of diversified machine tool operators: with the transfer of workers to the machine tool service, above the established rate of output, the piece rates can remain unchanged, even keeping them at the full rate, depending on the extent of use of worker time and equipment, the difficulty and conditions of the work.

In the textile industry the number of diversified machine tool operators exceeds 530,000 or 65 percent of all machine tool operators. During the period from 1976 to 1982, the number of spinners working in the upper service zones increased from 73 to 81.1 percent, and weavers, from 54.3 to 73.9 percent.

In this sector measures have been developed which permit the service zones to increase until 1985 by 8-10 percent, which will significantly reduce the need for labor resources.

In the machine tool ministries during the 10th Five-Year Plan, the proportion of workers employed in diversified machine tool and diversified aggregate services increased from 15.5 to 20.8 percent of the number of machine tool operators.

At the same time, individual ministries (Ministry of Chemical and Petroleum Machine Building, Ministry of Power Machine Building) predicted an insignificant increase in diversified machine tool operators for the 11th Five-Year Plan. The experience of the transition and the completed calculations show that given the employment of appropriate organizational and technical measures, the proportion of diversified machine tool operators may reach 18-22 percent in light serial production; 24-26 in serial production; 48-54 percent in mass production.

Brigade Form of Labor

With the Shchekino method, as with the comprehensive system of VAZ, the diversified machine tool service and job slot certification should develop further under conditions of brigade organization and stimulation of labor.

In recent years, the brigade form of organizing labor has become widespread throughout industry. In 1981-1982 alone, the number of workers employed in brigades increased to 4.6 million and, at the present time, constitutes more than 60 percent of the total personnel.

In progressive brigades, labor productivity is increasing by 10-15 percent and more, as a result of combining occupations and operations, diversified machine-tool services, the increased interest of all members of the brigade in final results, growth in qualifications, assimilation of progressive work methods and the strengthening of control by workers themselves over the contribution of each person toward the collective results.

The "USSR Law on Labor Collectives and the Increase in Their Administrative Roles in Enterprises, Institutions, Organizations," adopted by the USSR Supreme Soviet in June 1983, defined the basic powers of the production brigade collective as the first link in the labor collective. It has been established that the production brigade collective actively participates in resolving questions of staffing the brigade, planning and organization of its operation, and in paying for the stimulating work.

Recently, the Politburo of the CPSU Central Committee in a regular session examined the question of the further development and increased effectiveness of the brigade form of organization and stimulation of labor in industry.

Spreading the Shchekino Method to Other Sectors

As experience shows, the sphere of application of the Shchekino method is not limited to industry. It may be used in practically all sectors of material production and in the nonproductive sphere as well. In the town of Shchekino, for example, trade, transport, everyday repairs and other services operate according to this principle. On the whole, in 1982 it was used by 20 different railroads, 30 percent of the marine vessels, 360 communications enterprises, more than 400 sovkhoses, many public catering enterprises and organizations, housing and communal services and everyday repairs and other services, cultural institutions and other nonproduction sectors of the economy.

One can see that the introduction of the Shchekino method into other sectors should be done taking the special circumstances of each into account. The reserves here are particularly great. Here, there are also unresolved problems.

Thus, in industry and other sectors over the last two 5-year plans, progressive operational experience has accumulated, ensuring fulfillment and overfulfillment of planned quotas with fewer personnel. However, as practice shows, and EKONOMICHESKAYA GAZETA has justly noted in its publications, this experience is underutilized.

For a successful fulfillment of 1984-1985 quotas and the 5-year plan as a whole, it is necessary to more widely and effectively use the experience of past times, the progressive methods of organizing labor and material stimuli, directed toward increasing labor productivity and completing as established volume of work with less personnel and staff.

For this purpose, ministry leaders, production associations, enterprises and organizations must organize a continuous and planned study, generalization and introduction of this experiment. They should realize that its effective application, taking into account the special sector and production features, is obligatory at all levels of production management.

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LABOR

GOSPLAN EXPERT ANALYZES WORK STATION-WORKER RATIOS

Moscow PLANOVYE KHOZYAYSTVO in Russian No 3, Mar 84 pp 40-47

[Article by I. Malmygin, senior scientific worker, NIEI [Scientific-Research Economic Institute] under the USSR Gosplan [State Planning Committee] and candidate in technical sciences: "Enterprise Capacity and the Work Station"]

[Text] The most important task of the planning organs is the development of measures aimed at the more complete utilization of the country's production potential and the creation of conditions for the fastest possible attainment of plan indicators on output-capital ratio and labor consumption of production. The text of the speech presented by Yu. V. Andropov at the December (1983) Plenum of the CPSU Central Committee noted: "We should also resurrect the movement for increasing the factor of equipment shift applicability and attainment of project labor consumption. And, of course, this must be done on a new organizational and technical basis. Proof is hardly necessary to show that these measures may significantly increase the product output and reduce expenditures for production. The ministries, departments and planning organs must think seriously about how they can implement the measures associated with this."¹

The development of a system for planning the reproduction of work stations has great significance for solving the indicated problem. This system must facilitate the achievement of balance between the presently available and created work stations and the labor resources. The current importance of developing such a system at the present time is defined by several reasons. One of them is the need for quantitative correlation between the means of labor and the labor resources.

Project plans for enterprises define strict relationships between the amount and shift applicability of equipment, the number of workers, and the volume of manufactured products. Every work station (except for reserve stations) must be utilized for a certain number of station-shifts per 24-hr period. In other words, each work station must be staffed by: one person with single shift application, two people with two-shift application, and three people with triple shift application. Thus, already at the stage of planning the enterprises, the necessary ratio between the number of workers and the number of work stations is established (the project, or normative coefficient of work station staffing).

¹"Materialy Plenuma Tsentral'nogo Komiteta KPSS 26-27 dekabrya 1983 goda" [Materials of the Plenum of the CPSU Central Committee, 26-27 December 1983], Moscow, Politizdat, 1983, p 12.

This coefficient is not identical to the coefficients of enterprise shift applicability of equipment or workers. For example, an enterprise with continuous production and difficult working conditions may operate in four shifts, and a total of seven people will staff one work station (the staffing coefficient is equal to seven) due to filling the shifts on days off, vacations, etc.

If in practice the ratio between the number of labor resources and the number of work stations in the region or the country is higher than the normative staffing coefficient, this means that there is a shortage of work stations. If, on the other hand, the indicated ratio is lower than the normative coefficient, then this means that there are too many work stations. To analyze the balance between work stations and labor resources, it is most expedient to utilize the following indicators: amount of labor resources, number of normative and actual station-shifts at the enterprises, and number of workers. Their relation shows the necessity of creating new or eliminating existing work stations. In 1924 the shortage of work stations as compared with the amount of labor resources with consideration of shift applicability comprised 18 percent. In 1930 these indicators were equal. In 1960 the number of unoccupied work stations began to grow. At the present time, according to our computations, the expenditures for creating work stations over their necessary number and for their repair are approximately equal to the volume of capital investments in the 11th Five-Year Period. In connection with this it is extremely important to consider the quantitative balance of work stations and labor resources in further improving the methodologies and methods of planning production development and determining the volumes of capital investments.

An excess number of work stations and increased demand for a work force also cause a number of other undesirable economic and social consequences. These include the reduction in production and technological discipline, increased work force turnover, reduction in intensity and productivity of labor as compared with the normative level, incomplete utilization of capacities, etc.

In 1979, 179 industrial enterprises were investigated for the purpose of analyzing the balance between work stations and labor resources. At 51 of them the actual number of workers corresponded to the planned number, while at 128 of the enterprises part of the work stations were not staffed with a work force. At enterprises which were not completely staffed with a work force, the worker turnover coefficient was almost twice as high.

According to the data of an investigation of enterprises from 12 ministries conducted from 1976 through 1979, the portion of excess work stations increased by one-fifth. It comprised the greatest value at enterprises of the USSR Minlegprom [Ministry of Light Industry], USSR Minkhimprom [Ministry of the Chemical Industry] and a number of other ministries. It was specifically at these ministries in the years indicated that the worst ratios between growth in wages and labor productivity were found. At enterprises of Minlegprom each percentage point in growth of labor productivity corresponded to a 1.38 percent wage increase. At the enterprises of Minkhimprom the labor productivity dropped, while the wages grew by 0.41 percent computed per percentage point of reduction in labor productivity.

In 1982 the number of unoccupied work stations at the Prokopyev Porcelain Plant, the Tyumensk and Leninsk-Kuznetsk Worsted Wool Combines comprised 24-30 percent. The capacities of these enterprises were utilized by only 50-62 percent.

According to the results of the survey, when there are excess work stations at an enterprise, the volume of production decreases by 1.7 percent as compared with the normative level, computed per percentage point of excess work stations, while the labor productivity drops by 0.7 percent. This occurs due to the following factors.

First of all, with increased demand for workers, the worker turnover rate increases. This leads to a reduction in the average level of training of the workers engaged at the enterprises. In connection with this, the workers cannot provide the necessary level of labor productivity.

Secondly, with a shortage of workers, the level of labor intensity is reduced because the workers may obtain a higher wage without ensuring the socially necessary level of labor intensity. This occurs because enterprises interested in hiring additional workers will pay them according to a higher wage scale.

Under these conditions, plan workers must make downward corrections in the annual plans on the number and volumes of production in accordance with the level achieved in the past year. As a result, the actual labor consumption turns out to be higher than planned and the equipment shift applicability coefficient and capital-output ratio are reduced.

An important reason for increasing attention to the problem of effective application of work stations is also the necessity of increasing the qualitative correspondence between work stations and labor resources. The growth of the general education, professional and training levels of workers and the increased demands of the population must harmonically coincide with the development of means of production and improvement in labor conditions. It is necessary to perform on-going, planned certification of work stations for the purpose of determining their correspondence to current requirements, to develop measures for reducing the relative and absolute number of work stations with manual labor and with difficult and harmful working conditions, and to eliminate outdated enterprises and shops. Ergonomic recommendations should be given primary consideration in the solution of these problems.

It is necessary to develop and implement a set of accounting, plan control, incentive and other measures in order to achieve balance between the number of work stations in the national economy, sectors and regions and the amount of labor resources, as well as the production volumes in order to fulfill project and plan indicators by service zones and shift applicability.

Work is presently being completed on creating a set of methodological materials for managing the reproduction of the system of work stations in the national economy, sectors and regions.

In 1981 the USSR Gosplan, USSR Goskomtrud [State Committee for Labor and Social Problems], USSR TsSU [Central Statistical Administration], GKNT [State Committee for Science and Technology] and USSR Gosstandart [State Committee for Standards] have developed a plan which provides for measures ensuring the introduction of indicators on work stations into the practice of planning and accounting starting in 1984. The plan was ratified in 1982 and the indicated departments embarked upon its realization.

In 1983 the USSR Gosplan, USSR Goskomtrud, and USSR TsSU ratified standard methodological directives for planning, accounting, certification and rationalization of work stations in associations (enterprises) of the machine building ministries. They will be introduced starting in 1984. Parallel with this, the USSR Gosplan is preparing methodological materials for planning work stations in their national economic, sectorial and territorial aspects in order to use them in developing plans for the 12th Five-Year Period. At the end of 1983 the Council on Improving Work Organization of the USSR Gosplan apparatus examined the question of planning work stations in the national economy. The appropriate sections of the USSR Gosplan, NIEI and NIIPiN [Scientific-Research Institute on Planning and Standards] were assigned the task of ensuring the development of the necessary forms, indicators and standards and of making additions and changes in the methodological directives for compilation of state plans for USSR economic and social development.

In 1983 the USSR TsSU prepared methodological materials for an accounting of work stations at operating enterprises. Unfortunately, however, these materials did not contain a classification of work stations by the kinds of products manufactured at them. Such a classification would make it possible to unify the reserves of work stations according to the type of production and not to plan new construction if corresponding reserves of capacities are present. As a result, a significant economy of capital investments could be achieved. For example, in the CzSSR, 12-15 percent of the capital investments are being saved thanks to the implementation of this type of accounting. The classification of enterprises according to sectors which is presently provided for in statistical accounting forms does not always make it possible to effectively resolve question on the distribution of orders throughout enterprises of various ministries for identical products or to clarify available reserves.

The practical realization of the developed methodological materials depends in great part on the USSR Gosstroy [State Committee on Construction Affairs]. However, it has still not organized the introduction of indicators on work stations into the substantiating materials and projects for enterprises. These indicators must characterize the number of work stations according to categories of personnel and labor conditions (the overall number of work stations, their number for personnel engaged in primary and auxiliary work and for workers engaged in manual labor as well as in heavy and unhealthful work). Without these indicators it is impossible to compute the plan balance of work stations and labor resources.

Provisions should be made for listing indicators on work stations in the new variant of the passport of the production association (enterprise) which is being prepared, along with the indicators on the technical-industrial-financial plan and other plan and accounting documents.

The NIEI under the USSR Gosplan was assigned to work out a methodology of planning work stations, to implement methodological management over work on preparing instructive materials at various departments for the purpose of ensuring their uniformity and non-contradiction, and to analyze the balance of available and newly created work stations and labor resources.

The institute prepared a project for methodology of planning work stations in the national economy. The methods and order of planning organization presented in it were generally approved by the ministries, departments and sections of the USSR Gosplan.

The purpose of planning work stations is:

to substantiate the volumes of basic production capital and limits for numbers of workers and employees;

to ensure balanced reproduction of fixed production capital and labor resources;

to improve the application of capital investments, means of labor, production areas and work force.

The individual work station -- the part of the production area equipped with technical means intended for labor activity by one worker -- was taken as the accounting unit and object of planning. A collective work station is considered to consist of individual stations. The number of the latter is equal to the number of people engaged at this station during the highest staffed shift.

The quantitative balance of work stations and labor resources is determined in the methodology as an equality between the limits of numbers of workers and employees on the one hand and the derivative of the number of work stations for the project or standard coefficient of their staffing on the other. The normative number of work stations is that number at which the shift applicability of work by the enterprises, equipment, and workers set by the norms is provided.

The question of the size of capacities reserves and consequently also the reserve of work stations which does not require staffing under ordinary conditions requires further study. The size of these reserves and their territorial peculiarities must be substantiated.

The qualitative balance of work stations and labor resources is determined as the correspondence of work station properties (economical, technical, sanitary-hygienic, etc.) to the properties of the workers -- their profession, education, level of training, sex, age, etc.

The determination of the quantitative and qualitative balance of work stations and labor resources has its own specifics at different levels of planning.

For the national economy as a whole the number of work stations must be determined according to the amount of labor resources and the shift applicability coefficient of the workers. The latter is a complex indicator which requires consideration of economic, social, technical, technological and other factors in its computation. The national economic aspect of qualitative balance between means of labor and the work force is manifested in requirements for improving labor conditions and for instilling labor with creative elements which are common for all sectors.

At the ministry level the objects of planning at the present time are not work stations, but enterprises -- operating enterprises (including those which are being reconstructed and technically retolled), enterprises under construction, and enterprises which are being liquidated. For balanced reproduction of work stations and labor resources, enterprises must have such parameters (economic, technical, technological, etc.) which would make it possible to achieve normative correspondence between the facilities and the production nomenclature on the one hand and the number of work stations and limits on numbers of workers and personnel on the other. There are two possible methods for determining the number of work stations and the number of workers.

One of them is the following. The number of necessary work stations is computed based on the production volumes and the data on the amount of products produced at one work station. Then, using the staffing coefficient, the number of workers necessary to staff these work stations is obtained. In addition, using data on equipment productivity it is possible to determine its amount, and then to obtain the number of workers by service zones.

The second method is based on using the labor productivity indicator. Based on the indicator for production volume, the necessary number of workers are determined by means of the labor productivity indicator. Then, using the staffing coefficient, the necessary number of work stations is computed.

These two methods should not be set in opposition to each other. They should augment each other and intensify the substantiation for computation of the available resources. The selection of one method or the other as the basic one depends on the specifics of the sector and the presence and reliability of appropriate standards.

In determining the number of work stations and the limits on number of workers and personnel, it is necessary to consider all the personnel engaged in primary activity and all the work stations needed for it, i.e., the computation should stem from full labor consumption and output-capital ratio.

At the enterprise level, the primary and initial indicator is, as a rule, the number of work stations, with the number of workers being derived from it.

The methods and order of organization of planning work station reproduction in the national economy which are proposed in the methodology of NIEI under the USSR Gosplan were developed with consideration for the indicated specifics for determining the number of workers and the number of work stations. In accordance with this methodology, the USSR Gosplan, in conjunction with the ministries and departments, must compute and establish normative coefficients for staffing work stations (K) by sectors, subsectors and productions for the five-year period. These should be based on the need for triple-shift operation for continuous and capital-intensive production, as well as for production with deficit and unique equipment and for special types of production, as well as for double-shift operation of basic shops in other types of production.

$$K = \frac{q}{A}.$$

where q is the number of personnel engaged in primary activity necessary for staffing the work stations at the enterprises;

A is the number of work stations necessary for forming the normative capacity reserves.

The number of work stations at enterprises of the ministries and departments must correspond to the limits on the number of workers and personnel with the normative coefficient for staffing the work stations. First the number of work stations and their actual staffing coefficient for the end of the accounting period must be determined. Then the difference is computed between the required number of work stations under the normative staffing coefficient in the plan period and their actual number at the end of the reporting period. This difference determines the increase (due to new construction, expansion of enterprises and organizational-technical measures) and the reduction (due to liquidation, transfer, reconstruction and technical retooling of production) in the number of work stations by years of the five-year period. If it is impossible to achieve the necessary level of work station staffing in the upcoming five-year period, an exception is made and the task set for increasing the actual coefficients and bringing them closer to the normative (planned) ones. In these cases the ministries must present the central planning organs with data on excess work stations. In this case, it is necessary to classify the reserve stations according to type of production. Indicators on the reduction in work stations for manual labor and those with heavy and harmful labor conditions are also presented.

For purposes of rational coordination of sectorial and territorial planning, it is necessary for the USSR ministries and departments to forward to the union republic councils of ministers data on the number of work stations in the production associations (enterprises) and union-subordinate organizations which are found in the territory of the appropriate republic.

When the plans of the ministries and departments are reviewed in the central planning organs, it is necessary to implement constant control over: the annual reduction in the number of work stations per unit capacity of enterprises (for one billion rubles of gross production annually); the annual

growth of the work station staffing coefficient to achieve the normative level; the annual reduction in the portion of work stations requiring manual labor and having heavy and harmful labor conditions, and the liquidation of excess work stations (enterprises, shops).

In the process of analyzing the projects for sectorial plans for development of production capacities, it is necessary to provide for the full utilization of existing work stations (created capacities) by means of increasing the work station staffing coefficient in accordance with the normative sectorial level. The creation of new work stations (new capacities) should be planned only after the sectorial normative staffing coefficient for existing work stations intended for the production of the appropriate products and services has been achieved.

In coordinating projects for sectorial plans on capital investments, the allocation of capital investments for the creation of new work stations (new construction and expansion of existing enterprises) should be provided only the normative staffing coefficient for existing work stations has been achieved. The data on staffing of work stations by sectors of the national economy and industry must be systematized. The list of liquidated enterprises and shops should be sent to the ministries, departments and union republic councils of ministers.

Summary tables showing the utilization of work stations throughout the national economy by sectorial and regional cross-section should also be compiled.

The experience of Czechoslovakia, the GDR, as well as certain ministries in our country -- USSR Minsel'khoz mash [Ministry of Tractor and Agricultural Machine Building], USSR Minavtoprom [Ministry of the Automotive Industry] and others has shown that work on ensuring balance between work stations and labor resources cannot be successful if it does not include stimulation for reduction of the number of work stations per unit of enterprise capacity.

At the present time the presence of a reserve of unoccupied work stations is "expedient" for the ministries and enterprises.

First of all, the possibility of "production maneuvering" becomes possible. This is the transfer of orders from one enterprise or shop to another. This makes it possible to avoid developing measures for maximal utilization of capacities, improving organization of production, and elimination of equipment idle times.

Secondly, the wage level of workers and employees is higher at large enterprises. The number of personnel depends on the planned volumes of production. However, these volumes are in turn computed according to the capacity of the enterprise, i.e., by the amount and shift applicability of equipment. As a result, the enterprises and associations achieve the construction of new shops and plants. Having created new work stations, i.e., having increased their capacity, they receive additional limits on numbers of workers and employees and move up to a higher wage category.

Thirdly, instead of rebuilding old enterprises and shops, the ministries and departments often prefer the construction of new enterprises, particularly since the capital investments are allocated regardless of the results of the economic management activity and regardless of how the existing work stations are being utilized. Builders also have an interest in the development of new enterprises. Their wages and bonuses are much higher at new construction sites than in the reconstruction of operating enterprises.

There are also other reasons for the enterprises and ministries interests in creating and expanding the excess of work stations. In connection with this, the need arises for creating a system of incentives and sanctions directed at achieving a balance between work stations and labor resources.

One of the important conditions for solving the problem of balance between work stations and labor resources is the more complete and sequential utilization of economic cost accounting. As a rule, ministries and departments must meet their demands for funds to be used on capital construction from the profits which they earn. The allocation of capital investments for the creation of new work stations must be permitted only with complete (project, plan) utilization of the existing work stations. If unutilized stations are present, capital investments should be allocated only for renovation of production. When an enterprise receives bank credits for expanding production, the payment for these credits must increase progressively depending on the presence of unused work stations. In this case, the use of capital from the production development fund for these purposes must be prohibited.

At the present time, certain ministries (USSR Minavtoprom, USSR Minsel'khoz-mash and others) are using systems of stimulating the improvement in the application of existing work stations -- their certification, passportization and reduction of their numbers. However, these systems are not always effective.

In the Minavtoprom, for example, when work stations are certified, a remuneration is paid out for each certified station. When proposals are developed and measures implemented for reducing the number of work stations, up to 20 percent of the annual wage fund savings from the freed workers or up to six times the salary of the proposal's authors (by a special scale depending on the economic effect) is allocated for the incentive fund. For introduction of proposals on reducing the number of work stations, the author is paid a one-time monetary bonus in the amount of half of the monthly salary (wage rate) of the worker who has been liberated. After elimination of the work station, the proposal's author is given a personal bonus to his salary for a period of one year in the amount of 10 rubles for each reduced work station, not to exceed 30 percent of his salary. Work brigades which operate with lower staffing receive the full amount saved on the wage fund, and the brigade foremen receive a one-time bonus of up to 30 rubles no less than three months out of the year. If the technical services do not fulfill their quarterly and annual assignments for the development and introduction of measures for liberating workers, then their bonus fund for results of work performed in the given month is reduced by 10-30 percent. The system of bonus payments is analogous in Minsel'khoz-mash. At first glance it would seem that such an

incentive system must give positive results. However, a comparison of the growth indicators for production volumes and the number of work stations on the whole shows that the second indicator grows at a faster rate. The reason for this is that some enterprise and association services are engaged in reducing the number of work stations and are being given incentives for performing this work, while other services of associations and ministries (for example, construction) are striving toward the creation of new work stations and are being given incentives for achieving the directly opposite result -- for increasing their numbers. As a result, the actual number of work stations computed per one million rubles of production per year greatly exceeds the projected, normative value.

To eliminate such shortcomings, it is necessary to integrate the planning of work stations within the ministries into a single whole -- to determine the growth of their numbers and its reduction, and to stimulate this activity more consistently. For the practical realization of such measures, statutes must be developed on stimulating the economy of capital investments and fixed production capital. Unfortunately, this problem has not been formulated by either the USSR Gosbank [State Bank], the USSR Stroybank [Bank for Financing Capital Investments], or by the USSR Goskomtrud [State Committee for Labor and Social Problems].

The application of the developed methods for determining the quantitative and qualitative balance between work stations and labor resources at the level of enterprises, sectors, and the entire national economy will make it possible to improve the application of the existing equipment, eliminate the creation of extra work stations, and increase the effectiveness of capital investments and the growth rate of labor productivity.

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CSO: 1828/111

LABOR

ECONOMISTS COMMENT ON WAGE MANAGEMENT PROCEDURES

Moscow SOTSIALISTICHESKIY TRUD in Russian No 1, Jan 84 pp 84-91

[Article by L. Blyakhman, doctor of economics, professor, and T. Zlotnitskaya, candidate of economics: "To Wage Management--A Comprehensive Approach"]

[Text] The main principles of wage management in the conditions of the transition of the economy to an intensive path of development were formulated in the decisions of the November (1982) and June (1983) Plenums of the CPSU Central Committee, in the subsequent decrees of the party and the government, and in the speeches of Yu. V. Andropov. The basis of such administration is the precise and objective calculation of the labor contribution of everyone to the creation of material and spiritual goods, in which "work and only work, its real results, and not anyone's subjective desire or good will, must determine the level of the well-being of every citizen."¹

There has been an increase in the attention to work on securing a growth of labor productivity which outstrips the growth of wages. This question, in particular, was examined at sessions of the Politburo of the CPSU Central Committee, which approved the measures directed at the improvement of the correlation of the growth rates of labor productivity and wages, the improvement of the organization and norm-setting of labor to these ends, the more active utilization of the achievements of science and technology, progressive manufacturing methods, and means of mechanization and automation. We are talking about the necessity of strengthening the control of the measure of labor and its encouragement in all links of the national economy, the establishment of a closer link of pay with the results of work, and the rational and economical expenditure of the wage funds. In so doing, it is also important to secure the conditions for the more active participation of the workers in the consistent and precise practical execution of the principle of payment for work in accordance with the quantity and quality, the complete utilization of the rights granted to labor collectives.

The decisions are very timely since until recently the correlation of the productivity and payment of labor did not distinguish itself by stability. During 1961-1965 the growth of wages in industry in the USSR per 1 percent of increase of labor productivity came to 0.54 percent, during 1966-1970--0.86 percent, during 1971-1975--0.66 percent, and during 1976-1980--0.84 percent.

At the level of the work place, the link of productivity and payment of labor is also exceedingly inadequate. The research carried out during 1980-1981 at three large enterprises of the pulp and paper industry on the basis of the data of primary registration, the expert survey of foremen and interviews with workers of the major shops, showed that only the link of the level of the fulfillment of output norms with piece wages is important. The indicators of the utilization of raw material, energy, equipment, quality of production and discipline are not taken into consideration and do not exert a serious influence on changes in wages. This was also confirmed by an analysis of the data concerning the information of the worker about the conditions of pay, his interest in the improvement of the qualitative results of his work, satisfaction with the organization of the basic wage, the system of bonus payments, [wage] increments, etc., i. e., concerning the socio-economic criteria for the differentiation of pay. As a result, the unskillful or unconscientious workers, loafers, shirkers and job hoppers frequently feel free and in terms of wages and the dimensions of other benefits they receive they differ unjustifiably little from the conscientious workers.

In wage administration it is important to take more fully into consideration the social and personal factors so as to promote the increase of the material and spiritual requirements of the individual, the development of high conscientiousness, discipline, high standards of work and consumption, everything that is designated by socialist civilization and determines the quality of life. It is necessary to take into account the entire complex of interrelationships and the real conditions of the administration of labor in the contemporary stage, especially the level of its organization and its content (the preservation of still a large number of physically heavy and unattractive routine work operations). In assessing the results of labor, we must keep in mind not only the overfulfillment of the tasks and plans in terms of the quantitative indicators, but also the increase of the technical level of production and the quality of production, the improvement of the utilization of production capacities, raw material, energy, working time, and rational economy in everything.

In the last party decisions a concept of a triune criterion for the assessment of work results has been developed, including, first of all, the fulfillment of plan tasks (in terms of the volume of the realization of production, taking into account obligations with respect to deliveries and indicators of production efficiency), secondly, the dynamic of capital formation indicators (the growth of the technical level and quality of production, labor productivity, reduction of production cost or increase of profit, and the improvement of the utilization of producer goods), and, thirdly, the level of labor efficiency (norms for the formation of incentive funds per unit of production in physical terms, norms for the formation of the entire sum of the indicated funds on the basis of the normative distribution of profit).

Taking all of this into account, wage administration is called upon in the complex to take into consideration all items of the real labor process. We are talking, first of all, about the labor potential of the worker, the measure of which is education, professional training, and the length of service in the specialty and in the enterprise, the knowledge of related professions and other social-demographic and social-psychological features of the person.

Secondly, in stimulation consideration must be given to the socio-economic and organizational conditions of labor--its content (the correlation of physical and mental, organizational and executive labor, the diversity of operations, production independence, etc.), conditions and organization. Thirdly, the direct process of labor characterizes its quantity and quality (the time worked, difficulty, intensity). And, finally, wages must depend on the efficiency of labor.

Thus, two of the components mentioned above characterize personal and material-substantive prerequisites of the labor process, the third--this process itself, and the fourth--its results. In the aggregate they reflect the quality of labor in the broad sense of the word or, in other words, the quality of work. Until the beginning of the 1980's, consideration was given mainly to the quantity and quality of labor in the narrow sense of the word. True, for some categories of workers the growth of labor potential was encouraged (additional pay for long meritorious service, educational degree, etc.). But this encouragement was not related to the final results.

In the article "The Active Utilization of Wages for the Intensification of Public Production and the Growth of Its Efficiency" (1983, No 4), discussed in the pages of this journal, its author, Ye. Kapustin, proceeds from the fact that the principle of distribution on the basis of labor is distribution not on the basis of labor expenditures, but on the basis of results. Thus, he proposes to differentiate pay above all in accordance with the results of labor, but not with the potential possibilities of the worker, being fixed by his rank or diploma, which must serve as the condition or priority indication for his receiving the respective work. Not any increase in skill must be stimulated with the aid of wages, in the opinion of Ye. Kapustin, but only that which is necessary for the execution of a given work operation and is practically realized in concrete results. Other economists propose that the quality and quantity of expended labor and pay in terms of its results are in essence identical concepts. In our view, the relationship here is far more complex.

The development of the labor potential of a worker, it goes without saying, leads to the increase in labor efficiency, but only in the presence of the corresponding organizational and economic conditions after a certain period of time, moreover not necessarily in the form of an increase in output. For this reason, the growth of labor potential as a manifestation of the comprehensive development of the individual and the growth of the abilities of the worker, in our view, needs special stimulation, which cannot be fully replaced by pay in accordance with the final results of labor.

Stable differences in the labor potential of workers find reflection in the system of increments to their wage (pay) scales. We consciously call them increments. In the 1980's four basic types of such increments are being used: For a combination of professions and the fulfillment of the work volume with a smaller number of workers (up to 50 percent of the wage rate or salary); for high professional skill to qualified workers (4.8 or 12 percent of the wage rate within the limits of the inter-category difference), engineering and technical workers (up to 50 percent of salary); for prolonged meritorious service

or taking into account the length of work in an enterprise according to work results per year; according to the coefficients of labor participation (in the presence of the brigade organization of labor) or in accordance with the individual certification of engineering and technical workers (within the limits of the "bracket" of salaries for a given position). In our opinion, such an enlarged classification makes it possible to regulate the application of all diverse increments, which--given the unity of their functions--duplicate each other, even though they bear different names: Additional payments, increases, rewards, etc.

Until recently the share of the indicated increments in wages was small. Only in enterprises utilizing the Shchekino method do 8 to 10 percent of the total number of workers receive them for the combination of professions, and when the system of the Order of the Red Banner of Labor Volga Automobile Plant imeni 50-letiya SSSR is used, 25 to 40 percent of the workers are given increments for professional skill. Among the engineering and technical workers increments are set approximately from 8 to 9 percent, primarily for foremen.

The additional measures for the expansion of the rights and the responsibility of enterprises, which are scheduled to be realized beginning in 1984 in experimental form, must increase the role of increments significantly. First of all, all categories of personnel may receive them; secondly, the maximum size will be increased for all workers up to 50 percent of the wage (pay) rate; thirdly, many of them will be set not for one year, but until their cancellation; fourthly, the total sum of the increments and correspondingly the number of those receiving them will be limited only by the dimensions of the economy of the wage fund.

All of this requires a more precise definition of the economic essence of the increments as a relatively independent element of wages. In contrast to additional payments, they are connected not with the conditions of labor at a given place of work, but with the personality of the worker, and precisely with those of his qualities which are not fully reflected in the wage rate category and the salary. Their goal is to create in the workers the conviction that their discipline, initiative, labor activity and creative relationship to work will be acknowledged and rewarded.

It is exceedingly important to follow and to maintain certain correlations between the sum of increments and the magnitude of savings as a result of the freeing of workers. It is impossible, apparently, to allow that they, as they say, "crawl away in different directions", as frequently happens. Thus, in the VPO Soyuzbumizdeliye [All-Union Production Association for Paper Products] during 1977-1980 the sum of savings declined from 814,000 to 704,000 rubles, at the same time the number of workers receiving increments increased almost twofold (from 1,100 to 2,000 people), but the sum of the increments increased by a factor of 1.4. In the All-Union Production Association for Paper Production, on the contrary, with the economy growing, there was an almost twofold reduction in the sum of one-time-only rewards, although the number of workers receiving increments grew by a factor of 4.5. These examples only confirm that, if we want to increase the significance of increments, more precise rules for their establishment and payment must be developed.

Still another element of the organization of wages--the coefficient of labor participation--serves to stimulate the increase and the fuller utilization of labor potential. It seems to us that its application is effective only within the framework of an overall reorganization of the payment of labor and the intensification of educational work, otherwise the member of a brigade turns out to be interested only in the growth of his personal coefficient of labor participation. The introduction of the coefficient of labor participation requires daily accounting and precise regulation of all conditions and indicators, on the basis of which its increase and decrease take place. In our view, the circumstance that they calculate the coefficient of labor participation once a month, as a back figure, converts it into a conditional magnitude, which is non-objectively determined. Moreover, evidently, it is expedient to establish separately the coefficients of professional skill (combination of professions, multi-machine tool operation, difficulty and efficiency of labor), which are determined objectively, and of social activeness (discipline, initiative, tutorship, and others), which can be measured only through the involvement of experts. But the main thing is the presence of standards linking the growth of the labor efficiency of the brigade as a whole with the increase in its wage fund.

In contrast to increments, additional payments are connected mainly with endurance, with work in special conditions and not corresponding to the places of work. They have primarily a compensation character and include additional payments for work in special conditions, at night time, on days-off and holidays, for increased intensity of work (during work in accordance with technically justified norms which exceed the industry norms), as well as payments according to rayon coefficients.

In proportion to the growth of the cultural level of the workers and the comfort of their housing, there is also an increase in the exactingness with respect to working conditions. Almost all of the young people coming to work now have an identical--secondary--education. The social preconditions for attaching some part of the workers to sectors of unattractive and mostly unskilled labor are disappearing. For this reason, depending on its heaviness and its pithiness, everyone has the right to count on corresponding wages. As a result, there is an increase in the differentiation in pay according to the conditions of work. The rate groups, as well as the criteria for the distribution of work according to working conditions must be established centrally. At the same time, the centralized establishment of wage rates for concrete work operations on the basis of a single enumeration of professions does by far not always justify itself. In the conditions of the scientific-technical revolution, the differences in the conditions of work, given the utilization of different technology, are significantly greater within the framework of one profession than among professions. It is expedient to expand the rights of the administration and the labor collectives in the sphere of the classification of concrete work places according to the conditions of work. The number of gradations here, as shown by the experience of the Order of the Red Banner of Labor Volga Automobile Plant imeni 50-letiya SSSR--must be increased from 3 to 6 or 8, and the extra payments must be effected taking into account the work time actually worked in a given section. This will make it possible to resolve more easily many problems connected with the combination of professions which now have to do with various lists by working conditions.

The labor potential and working conditions exist to the beginning of production. The quantity and quality of work manifest themselves already in this very process. Wage management is conducted here with the aid of norm-setting, the wage-rate system and the wage forms. Comprehensive wage management presupposes the utilization, by designation, of all of these elements of its organization.

Let us dwell in greater detail on the urgent problems of the norm-setting for labor. It is by its nature the final stage of the planning of the scientific organization of labor, the basis for the determination of the necessary number of workers, the establishment of the normal intensity of labor and the tasks with respect to the assimilation of progressive experience and the designed capacity of equipment. This is precisely how things stand at the Order of the Red Banner of Labor Volga Automobile Plant imeni 50-letiya SSSR, where the standardized task is established proceeding from the technical parameters of the productivity of equipment. In so doing, the standardized term for the assimilation of the planning indicators, the fixed schedule of their achievements and correspondingly the reduction of the labor-intensiveness of commodities are determined. Here the norm appears effectively as the measure of labor, and not as a means for the regulation of wages, their adjustments to the average and plan level.

During 1965-1982 there was a significant increase in the extent of the inclusion of the workers by the norm-setting of labor, as well as the share of norms which accountability regards as technically based ones. However, at the same time the growth rates of labor productivity decreased. Only 8 percent of the technically-based norms in industry are established on the level of model norms. The percentage of their fulfillment during the period between revisions of the wage rates is sharply increasing--which leads to unjustified fluctuations in wages. And the industry norms of service, too, do not serve as a precise measure of labor: 70-80 percent of the workers in the textile industry of the RSFSR overfulfill them. The issue, it goes without saying, does not lie in lowering the significance of norms as such, but in the fact that they almost entirely have been transformed into kinds of pay instruments.

As Ye. Kapustin notes correctly, the existing system of the permanent revision of output norms (the existing system being, to a significant extent, a formal one) makes their overfulfillment disadvantageous for the workers and restrains the utilization of individual reserves of output growth. The stimulation of the overfulfillment of norms with the aid of special additional payments hinders the outstripping growth of labor productivity in comparison with its pay. In our view, there is one way out--the norms which correspond to the planned labor intensiveness of commodities and the certified productivity of the equipment must be established as all economic norms, for the five-year-plan. Their revision is possible only simultaneously with the change of the rates. In the course of the five-year-plan it is expedient to introduce new norms only in connection with a change in the technique and technology of production, or to make the transition from temporary to stable norms--on the basis of a previously approved schedule. It seems to us that in so doing the average percentage of the fulfillment of norms as a whole for an industry would remain much more stable, and wages could be regulated within the limits of one cate-

gory (position) with the aid of increments, additional payments and bonuses, but not by means of a change of the output norms. The rigidity of the norms must not depend on the will of the foreman or other representatives of the management. Not only the effectiveness of pay depends on the validity of the norms, but also the socio-psychological climate in the collective and the effectiveness of the measures to control the movement of personnel and labor discipline.

In the economic literature, the differentiation of wages is usually investigated in terms of its dependence on three factors: The difficulty of work, the conditions of work and the sphere of its application (region, industry). Ye. Kapustin is completely right in noting that in the characterization of the organization of wages until recently, as a rule, only one goal was emphasized-- the stimulation of the more difficult and heavy work being carried out in relatively poor conditions, and insufficient attention was given to the stimulation of its final results. But this is not the only point. We would like to emphasize that in the standardized differentiation of wages many characteristics of the content of labor important for the worker (diversity or monotony of the operations being executed, independence in work, the possibility of the utilization of knowledge) and its conditions (neural-psychic loads, danger, work-related illnesses, the rhythm and shift system of work), as well as the differences in the work potential, are not taken into consideration sufficiently.

As a result, the actual differentiation of wages differs significantly from the normative differentiation envisaged by the wage rate system. According to the data of a simultaneous investigation by the USSR Central Statistical Administration in 1978, in the machine building, wood processing, cellulose and paper, chemical and petrochemical, textile, petroleum processing, and other sectors of industry the actual differentiation of wages amounted to 1.00:2.03-2.22 in the presence of a range of wage rates of 1.00:1.71. For some professions, this difference is still more significant. What is the reason for this kind of deviation? Evidently, the fact is that the real conditions of labor management were not taken into account in the organization of wages. This inevitably shows up, but not in the wage rate system, but in a certain "price" of the daily wage, which takes shape in many respects in spite of the correlation being outlined, although it is nowhere officially approved. However, it is precisely what practically determines the level of the wage of the worker, depending on sex, length of service, profession and region.

The "price" of the daily wage has a significant influence on the movement of personnel. Distribution according to work includes not only the direct influence of society and collective on the individual, but also reverse relations. If this is not taken into account, the increase of wages must be effected as a back number, as a reaction to the "drain" of personnel from a given sector, from a given industry. Unfortunately, the payment for fictitious work is used for such an increase very frequently (especially in construction, transportation, in individual and small-scale production), as well as the overstating of its real difficulty, the lowering of output norms, and the introduction of guaranteed bonuses and extra payments (regardless of the real labor contribution).

Among the factors determining the "price" of the daily wage in a given region are the indicators of labor potential (above all the length of professional training and the length of service), the content and conditions of work, its intensity and efficiency. Concrete socio-economic research makes it possible to determine their comparative significance and character of influence on the level of the wages of workers--research which combines the analysis of primary accounting and sociological survey, which helps to reveal the satisfaction of the various groups of workers with the conditions and the effectiveness of the payment of their labor. Of course, this "price" cannot serve as an orientator in the planned wage management since it reflects correlations that have arisen in conditions of personnel deficit of a number of professions. However, it is also impossible to ignore conditions which have developed in practice.

Wage management is a link of the economic mechanism. As other links it is called upon to secure the agreement of the interests of society, labor collectives and individual workers. In particular, the wage rate system is closely connected with other economic norms: Prices, norms for the distribution of profits and the formation of economic incentive funds, pay for production resources, etc. For this reason their revision must be carried out simultaneously and in correlation--once in a five-year-plan. The practice of introducing new wage rate conditions once every 10-15 years does not conform to the basic principles of rational management since in this case we have a delayed reaction to the reduction of the share of rates in wages, and not a forestalling influence aimed at the creation of economic conditions and stimuli for highly productive work.

One can also hardly agree with the proposals for an annual revision of the wage rates and the introduction of limitations of piece-rate extra earnings (through the introduction of a maximum percentage of norm fulfillment). Wage rates reflect diverse and relatively stable characteristics of the quality of work which cannot be significantly changed in the space of one year. The results of work, it goes without saying, are changing much more dynamically, which is reflected in the dimensions of bonus and other incentive payments.

In the conditions of the scientific-technical revolution, the assessment of labor efficiency becomes significantly more complicated and the concept of the measure of labor expands. This means that it is impossible to reduce everything only to the fulfillment of output norms. Today the problems of quality are being moved into the foreground. For this reason, wages, too, must be related more closely to the quality and efficiency of labor. This connection is attained primarily with the aid of bonus systems.

In assessing the trends of development of the bonus systems, it must be acknowledged that they are contradictory. On the one hand, the increase of the number of directions along which the worker can influence the efficiency of production leads to their diversity. On the other hand, we observe their unjustified complication and at times their duplication as well. In such conditions, the direct and clear connection between the sum of the bonuses and the magnitude of the attained effect. To solve this contradiction, it is necessary above all, in our view, to define more precisely the classification of the bonus system. Here one can distinguish three basic groups. First of all, we are

talking about bonuses-increments for the attainment of plan or normative indicators (planned labor-intensiveness, the introduction and assimilation of production capacities, technically-based norms, etc.). These bonuses-increments, as it were, combine with the wage rate (salary) and are, in essence, part of the basic wage. The second group is composed of bonuses proper, which are connected with the excess of norms in terms of production efficiency (economy of labor, material, fuel-energy and investment resources) and with the export of production. In the third group we would include rewards for rationalization proposals and inventions, the increase of the organizational-technical level of production in terms of the total results of work for the year, for the fulfillment of especially important tasks, etc. Many of them are not directly connected with the receipt of a certain effect, but must be used as a means for the encouragement of personal initiative or the quality of work of the collective as a whole.

The classification of the bonus systems, in our view, is very necessary since it opens the way for their unification and at times a multitude of diverse incentives which are uniform in terms of purposes and sources. This facilitates the selection, from the entire variety of systems and for every worker, of those two or three which most accurately reflect the specific character of their work, and this makes it possible to determine more precisely and to encourage their labor contribution to the final results. Then one could unite the bonuses for the economy of resources in the material incentives fund and compare them with the actual economy of these resources. The bonus-increments and the bonus-rewards can be paid at the expense of a reserved part of the wage funds, as well as the economy of these funds.

For the time being, the movement of the bonuses is not strongly connected with changes in the efficiency of labor. And to a significant extent this is explained by the mechanics of the "removal" of the average wage.

We would like to dwell especially on such an important demand on overall wage management as the unity of the principles of its organization for all categories of workers. Formally this unity does exist, since the salary in terms of its functions, as it were, corresponds to the wage rate, and all workers have the right to bonuses, extra payments and increments. However, the wage scale of the workers includes up to 8 categories, and the "qualification ladder" of the majority of specialists and engineers (if we digress from the administrative career) has only 2 steps. The share of incentive payments at the beginning of the 1980's for workers came to more than 32 percent, for engineering and technical workers--to 24 percent, and for employees--to only 21 percent of the wages. Moreover, for the workers the bonuses from the wage fund are often a guaranteed part of the wage, but for the engineering and technical personnel and the employees their receipt is connected with many conditions, which frequently do not depend on the given worker. At the same time, for the engineering and technical personnel the indicators of bonus payments according to a number of regulations are duplicated. As a result, for the period 1970-1980, the gap in the average wage of engineering-technical personnel and workers diminished in industry from 36.3 percent to 14.6 percent, and in construction--from 34.7 percent to 2.4 percent.

As before, the question of "For what should bonuses be paid?" remains acute. According to the data of a simultaneous selective calculation in 1979 involving the general managers and superintendents of plants of enterprises of the heavy and power engineering industry and a number of other industrial ministries, only 25-39 percent of the incentive payments were connected with the basic results of economic activity--the fulfillment of the plans for the production and deliveries of products. Obviously, this is not much.

Only practice can give a final answer to the question, for what should bonuses be paid, and in what dimensions.

Of fundamental significance is the experience of labor organization and wage payment in the construction of the Urengoy-Uzhgorod Gas Pipeline. Here an entire integrated technological production line, performing work operations along a linear part of the gas pipeline, received the status of general contractor and cost accounting organization. The whole collective of the production line, including the engineering and technical personnel, worked in accordance with a single order on the basis of the accounting cost of a kilometer of finished gas pipeline. As a result, it proved possible to decrease the number of employed from 400 to 250 people and to increase the average monthly output from 7,750 to 11,000 rubles, and the average wage of engineering and technical personnel and employees--from 160 to 306 rubles.

Exceedingly effective is the incentive system for engineering and technical personnel operating in the Leningrad Svetlana Association. Here the regulations concerning incentives have been introduced into the rank of standards and are part of a comprehensive system of control of the efficiency and quality of production. They are maximally differentiated depending on the position duties of engineering and technical personnel. In addition, in all regulations the coefficient of plan tension is taken into account. The incentives for engineering and technical personnel and workers have a common basis--the fulfillment of the plans for deliveries and labor efficiency. It is characteristic that the control of executive discipline and the accounting are conducted with the aid of an automatic control system. This made it possible, without an increase in the staffs of the OOTZ [special departments of labor and wages] and document turnover to create a multi-factor system of payment, taking into account more than 200 conditions for incentives.

In the complex it is also necessary to make use of incentives for labor. Their traditional division into material and moral incentives--including in the first monetary rewards, and in the second--only incentives not connected with material objects--is too simplified. We recall in this connection that V. I. Lenin, already during the first years of Soviet power, demanded the encouragement of outstanding communes not only with an increase in wages, but also with a reduction of the working day for a certain period, and with the granting of a greater number of cultural or aesthetic goods and values.²

We consider it expedient to discuss in greater detail the classification of incentives, including monetary, non-monetary material, creative (increase in the pithiness of work), prestige incentives (connected with the growth of authority in the collective), etc., as well as the principles of their combination.

In the decree of the USSR Council of Ministers and the AUCCTU "On Additional Measures for the Strengthening of Labor Discipline" (1983), attention is directed to the comprehensive utilization of incentives and penalties as stimuli for labor. The issue here is the expansion of the practice of the establishment of additional privileges and advantages for outstanding workers, innovators and experienced workers at the expense of incentive funds, the more complete calculation of the results of work in the determination of the time of leaves, the distribution of apartments, travel authorizations to sanatoria and holiday homes, the granting of additional leaves for uninterrupted length of service, as well as the strengthening of responsibility for loafing, intra-shift losses of working time, and other violations of labor discipline and damages inflicted during the execution of work duties. In so doing, not only deductions from wages and deprivation of bonuses are used as penalties, but also the reduction of the next regular leave by up to 12 work days, transfer to lower-paid work, reduction in position, temporary refusal of dismissal at personal request, cancellation of the labor contract on the initiative of the administration, etc.

In conclusion, we would like to emphasize how important it is to establish a rational degree of centralization in the realization of measures to improve wages. The object of centralized management must be first of all: A common level of wages throughout industries, regions and social and professional groups, the rates of their growth, their correlation with the growth rates of labor productivity, and a guaranteed minimum wage.

At the same time, the contemporary comprehensive approach to the problems of the improvement of the organization of the payment of labor requires an expansion of initiative in wage management at the local level. This is, first of all, the broader utilization of extra payments and increments as the means of securing the flexibility of the wage rate system during the period between its centralized revisions. Secondly, this revision itself cannot be carried out only one time, but in the course of 1-2 years, above all in the labor collectives and industries which have attained the greatest successes in increasing labor efficiency and the mechanization of labor-intensive processes, as well as the freeing of personnel. New rates and salaries (within the limits envisaged for the next five-year-plan) could be introduced gradually, for individual categories of personnel and in proportion to the accumulation of funds. Thirdly, the sources for the increase of wage rates must be, above all, the internal resources of the enterprise--savings in the wage fund as the result of the reduction of the number of workers and the outstripping growth of labor productivity, the combination of professions, the increase of professional skill, etc. And, finally, fourthly, the number of centrally planned indicators for labor should be limited, having excluded from them the intermediate indicators of the quality of the norms, the scales of their revision, the tasks in regard to the number and the average wage for categories of personnel, etc.

Until the beginning of the 1980's, in the total growth of average wages, there was a steady increase in the share being received by virtue of centralized measures. In the 8th Five-Year-Plan approximately 25 percent were secured in this way, in the 9th--more than 30 percent, and in the 10th--more than 40 percent of this growth were secured in this way.³ In the 1970's about 20 billion

rubles were allotted from the state budget to carry out these measures. The internal reserves of enterprises and organizations amounted to only about 4 billion rubles (i. e., 20 percent of the funds expended for the increase of wage rates and salaries).⁴ According to our conviction, in contemporary conditions the enterprise itself must secure the payment of the wage part of the reward fund, utilizing, if necessary, the incentive and reserve funds and bank credit. The question of how to do this in practice requires special and independent examination.

FOOTNOTES

1. Yu. V. Andropov, "Karl Marks i nekotoryye voprosy sotsialisticheskogo stroitel'stva v SSSR" [Karl Marx and Some Questions of Socialist Construction in the USSR], KOMMUNIST, 1983, No 3, p 16.
2. V. I. Lenin, "Poln. sobr. soch." [Complete Collected Works], Vol 36, p 192.
3. L. E. Kunel'skiy, "Zarabotnaya plata i stimulirovaniye truda" [Wages and the Stimulation of Labor], Moscow, Ekonomika, 1981, p 87.
4. V. Rakoti, "Povyshat' stimuliruyushchuyu rol' zarabotnoy platy" [To Increase the Stimulating Role of Wages], SOTSIALISTICHESKIY TRUD, 1981, No 7, pp 34, 35.

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LABOR

IMPACT OF TECHNICAL REVOLUTION ON LABOR TRAINING, ORGANIZATION

Better Vocational Guidance Required

Moscow SOTSIALISTICHESKIY TRUD in Russian No 1, Jan 84 pp 8-16

[Article by Yu. Yakovets, doctor of economic sciences: "The Technological Revolution and Labor Training"; passages rendered in all capital letters are printed in boldface in source]

[Text] The development of our country's productive forces is based on the planned incorporation of scientific and technical achievements. Today, as Comrade Yu. V. Andropov said at the June (1983) CPSU Central Committee Plenum, "the principal method of achieving qualitative advances in productive forces is naturally the transition to intensive development, combining the advantages of our socialist order with the achievements of the technological revolution. And this implies its very latest stage, which will require radical technological changes in many spheres of production."

The new stage of the technological revolution began in the second half of the 1970's in the world's most highly developed countries. It is based on the productive use of recently discovered natural tendencies in the development of the microworld and nature, which have become the foundation for the establishment and subsequent rapid development of microelectronics and new biotechnology. The revolutionary changes have extended to equipment and technology in the production sphere (comprehensive automation based on microprocessors, industrial robots and flexible automative production units; the use of non-traditional sources of energy; the development of fundamentally new materials with specified properties; the widespread incorporation of waste-free and low-waste technology) and the non-production sphere (education, public health, trade, consumer and municipal services, administration and personal consumption). The mastery of new scientific and technical fields and the reorganization of all sectors with the aid of the latest equipment will be followed by the dramatic augmentation of labor productivity and production efficiency. Therefore, the depth of the changes in the material basis and living conditions of society is such that we could, in our opinion, refer to the beginning of a new technological revolution, and not simply a new stage of the old one.

Technological revolutions bring about substantial changes in labor training and in education in general. We are now on the threshold of such changes.

This will require, first of all, the provision of those who will be manufacturing and using equipment of new generations with the knowledge and production skills needed for the mastery of its full potential; secondly, the training of scientific personnel and designers capable of converting the highest achievements of scientific and technical thought into fundamentally new equipment and technology; thirdly, the reorganization of the very content of the educational process by excluding all that is outdated and adding all new scientific discoveries and inventions; fourthly, the reorganization of the technical base and training methods with a view to the achievements of the new technological revolution.

What is the basic level of general and vocational training of persons employed in the national economy; by estimating this level, we can gain a clearer understanding of the future manpower training objectives corresponding to the needs of the second technological revolution.

Indicators of the education dynamics of the employed population in the USSR (Table 1) testify that significant changes have taken place in the makeup of workers engaged in physical and mental labor in recent decades. Whereas in 1939 only 4.5 percent of those engaged primarily in physical labor had at least a partial secondary education, the figure in 1983 was 80.1 percent. The majority of today's young workers and kolkhoz members have a secondary education. The educational levels of workers engaged in mental and physical labor and of workers and kolkhoz members have converged perceptibly. In general, physical laborers in all spheres now have a higher level of skills and training for the mastery of new complex equipment and technology than they did at the beginning of the first technological revolution.

At the same time, many workers and kolkhoz members with an adequate general education are still not receiving thorough vocational training. In 1982, for example, 2,516,000 of 10,446,000 trained workers had graduated from vocational and technical institutions, 644,000 had graduated from secondary vocational and technical schools, 186,000 had attended departmental vocational institutes in industrial enterprises or schools and institutes in other enterprises, and 7.1 million had received their training directly on the job. Besides this, many of the graduates of general educational schools (including secondary ones) had received their labor training in industrial training centers, but it is obvious that training on the job (unless for the mastery of a second specialty) or in industrial training centers cannot provide the worker with the thorough and systematic professional knowledge and skills meeting the requirements of the technological revolution.

This is why we must move up to a qualitatively new level of vocational training for all workers, combining a general secondary education with the thorough mastery of an up-to-date occupational specialty. This is necessitated by the changes in the very content of physical labor. Whereas it once consisted primarily of manual processes or the maintenance of simple machines and mechanisms, the comprehensive automation of production, the widespread use of industrial robots and machine tools with digital programmed control, the heightened complexity of technology and the incorporation of industrial methods in agriculture have dramatically increased the number of mental

operations in the labor of workers and kolkhoz members and are necessitating a more extensive and thorough knowledge of the scientific bases of modern production.

Table 1

Dynamics of Educational Level of Employed Population in the USSR*

| <u>Categories</u> | <u>1939</u> | <u>1959</u> | <u>1970</u> | <u>1979</u> | <u>1983</u> | <u>1984 in % of 1939</u> |
|---|-------------|-------------|-------------|-------------|-------------|------------------------------|
| Number of people with higher and secondary (complete or partial) education per 1,000 inhabitants | 123 | 433 | 653 | 805 | 858 | 696 |
| Higher education | 13 | 33 | 65 | 100 | 113 | 868 |
| Number of people with higher and secondary education (complete or partial) per 1,000 people of this category: | | | | | | |
| Workers | 87 | 401 | 590 | 760 | 813 | 934 |
| Kolkhoz members | 18 | 226 | 393 | 593 | 677 | 3751 |
| Employees | 546 | 911 | 956 | 983 | 986 | 285 |
| Number of people with higher and secondary (complete or partial) education per 1,000 people of this category: | | | | | | |
| People engaged primarily in physical labor | 45 | 325 | 543 | 732 | 801 | 1790 |
| People engaged primarily in mental labor | 515 | 896 | 953 | 981 | 985 | 191 |

* "Narodnoye khozyaystvo SSSR v 1982 g." [The USSR National Economy in 1982], pp 26, 29.

There have been changes in the level of training and the number of specialists employed in production and the non-production sphere: engineers, soil scientists, economists and others. The number of specialists with a higher education employed in the USSR national economy rose from 900,000 in 1941 to 3.5 million in 1960 and 13 million in 1982; the respective figures for specialists with a secondary specialized education were 1.5 million, 5.2 million and 18 million; the number of specialists graduating from VUZ's rose from 126,100 in 1940 to 840,800 in 1982, and the number graduating from secondary specialized institutions rose from 236,800 to 1,277,100. The Soviet Union leads the world in the percentage of specialists employed in the national economy. It is no secret, however, that some of them perform purely technical functions far below their educational level. That is why there is now a need to change the structure and quality of their training, to train more specialists in robot engineering, biotechnology and other new scientific and technical fields, to heighten their creative potential and their ability to adapt quickly to the constantly changing conditions of production, and to cultivate the desire to master and improve new generations of equipment.

One current development is the dramatic rise in the demands made on scientists and designers, who must generate new ideas and be able to implement them in the appropriate technological system. The number of scientific personnel and of people employed in science and scientific services rose substantially during the years of technological revolution, but the rate of increase has recently declined perceptibly (Table 2). Furthermore, there have been several apparent negative trends: the primarily extensive growth of science and its tendency to lag behind other national economic sectors in terms of the capital-labor ratio; negative developments in the makeup of the designer labor force; the lower productivity of scientific labor; the high degree of inertia in the structure and network of scientific establishments; the declining number of new young scientists. The primary objective now is the more intensive use of scientific potential--in other words, not quantitative growth, but improvements in the structure of the scientific labor force and heightened creative output.

Table 2

Changes in the Number and Makeup of Scientific Personnel in the USSR*

| <u>Categories</u> | <u>1940</u> | <u>1950</u> | <u>1960</u> | <u>1970</u> | <u>1980</u> | <u>1982</u> | <u>1982 in % of 1950</u> |
|--|-------------|-------------|-------------|-------------|-------------|-------------|------------------------------|
| Number of scientific personnel, in thousands | 98.3 | 162.5 | 354 | 927.7 | 1373.3 | 1431.7 | 884 |
| Including: | | | | | | | |
| Doctors of sciences | | 8.3 | 10.9 | 23.6 | 37.7 | 39.7 | 478 |
| Candidates of sciences | | 45.5 | 98.3 | 224.5 | 396.2 | 423.0 | 930 |
| Average annual rate of increase in number of scientific personnel, % | | 5.1 | 8.1 | 10.1 | 3.8 | 2.1 | |
| Persons employed in science and scientific services, in thousands | 362 | 714 | 1763 | 2999 | 4379 | 4475 | 627 |
| Their percentage relationship to total number of workers and employees | 1.1 | 1.8 | 2.8 | 3.3 | 3.9 | 3.9 | |
| Average annual rate of increase | | 7.0 | 9.4 | 5.5 | 3.9 | 1.1 | |

* "Narodnoye khozyaystvo SSSR v 1965 g.," pp 558-558, 709, "Narodnoye khozyaystvo SSSR v 1982 g.," pp 89, 364-365.

It will be necessary to specialize and expand the training of researchers in VUZ's and scientific research institutes with the necessary qualified personnel for the training of young people in new specialties. It will be equally important to create the most favorable conditions for the attraction of talented young people to science and to design establishments. The ingenuity and impact of scientific ideas and designs should be the most important considerations in the performance evaluations and incentives of researchers and designers. The USSR Ministry of the Chemical Industry, with its system for the certification of scientific projects, has accumulated valuable experience in this field.

The speed and efficiency with which scientific and technical achievements are incorporated depend largely on the willingness and ability of economic administrators to emphasize the incorporation of the best scientific and technical achievements, to take risks and to oppose technical conservatism. This meets Lenin's requirements for administrative personnel. "The administrator," V. I. Lenin said, "must be competent, must have complete and accurate knowledge of all production conditions, must know everything about the latest production equipment and must have a certain amount of scientific training."¹

As a rule, economic administrators have a specialized education but do not have an adequate background in management. This is why the training and advanced training of top-level economic administrators in the Academy of the National Economy of the USSR Council of Ministers and in institutes of national economic management are acquiring great significance.

What are the present indications of necessary changes in the personnel training system with a view to the requirements of the new technological revolution?

First of all, qualitative changes in the content of training will be required. This will entail not only the re-editing of textbooks by substituting new data reflecting the latest scientific and technical achievements for outdated information, but also changes in the relative emphasis on various fields. Extensive polytechnical training should be instituted during all stages of education. Today's individual lives in a diverse and rapidly changing world with increasingly complex technical equipment from his youngest years to his oldest. All of his labor will be connected directly with the use of scientific and technical achievements.

K. Marx once stressed the need for a comprehensive polytechnical education for children and adolescents. He wrote: "TECHNICAL TRAINING teaches the basic principles of all production processes and simultaneously gives the child or adolescent the skill to use the simplest tools in all fields of production.... The combination of paid productive labor, intellectual education, physical exercise and a polytechnical background will raise the working class to a level much higher than the aristocracy and bourgeoisie."²

As yet, these requirements have not been met in full. Schools usually provide only the most general and fragmented knowledge of the system of technical sciences and the basis of modern production. Labor training is confined to familiarization with the tools of labor and the technologies of one or two production areas (and these are sometimes not the most modern ones). The vocational training of workers and specialists gives them a thorough knowledge of their chosen specialty, but this knowledge is confined to one sector and is often confined to generations of equipment that will soon be obsolete. On the job, however, these people have to deal with an increasingly broad and rapidly changing range of technical equipment and the knowledge they have acquired is soon outdated. This is why it is necessary to work out the general principles and curricula of sufficiently broad polytechnical training for each level and form of education.

In the second place, in accordance with the changes in the content of training, a transition must be made to intensive training methods, based not on the

memorization of a specific quantity of facts, but on the development of the individual's creative ability to assimilate new ideas, the cultivation of the need to constantly renew, expand and actively use accumulated knowledge and the ability to do this with minimum expenditures of time and the maximum impact. After all, the training process is a form of labor, and just as any other kind of labor it can differ widely in terms of productivity and intensity. Today's individual must master the skills and standards of the learning process if he is to supplement his own knowledge continuously and effectively.

To heighten the impact of training, it will be most important for each person to want to learn and to have a profound creative interest in the mastery of skills, and this will require the reorganization of training methods to exclude elements of formalism, the excessively equal approach and the tendency to gear the training process to the slowest learners. Teaching methods using games simulating real situations must be used more widely. The experience of leading pedagogues and the practice of accelerated foreign language training prove that tremendous opportunities for the intensification of training have not been utilized as yet. Other requirements in this field include theoretical research, the summarization and bold dissemination of progressive Soviet and foreign experience, the radical revision of textbooks and teaching methods and the retraining of pedagogues.

In the third place, the fundamental improvement of teaching methods will require radical changes in teaching equipment, necessitating the incorporation of new scientific and technical achievements in this field as well. The provision of each upperclassman (and perhaps even underclassman) in a general educational school or vocational and technical institute and each student in a VUZ or tekhnikum with a microcalculator could accelerate computations dramatically, allow for the resolution of more problems during each class and relieve students of the monotonous calculations that stifle some young people's interest in mathematics. The use of video equipment in the educational process and the organization of the mass production of video recorders and video cassettes with teaching materials can diversify the academic process, heighten its graphic and illustrative properties and provide more ways of influencing the thoughts and feelings of students. Microprocessors can be used as the basis for a variety of teaching machines and training equipment for the study of foreign languages, the verification of the accuracy of assimilated information and the supervision of physical exercises. This will require that capital be invested in the organization of the mass production of teaching equipment, but this capital will be recouped through the better training of personnel, and this represents the most important factor in the acceleration of scientific and technical progress in the national economy.

The fourth item on the agenda is the reorganization of training on the basis of the continuous educational cycle. There are two objective reasons for this: the cyclical development of science and technology and the periodic appearance of new generations of machines (once every 8-10 years) and scientific and technical fields (once every 30-40 years), necessitating the periodic renewal of knowledge and production skills and the formation and development of the person as a worker and an individual in successive stages. This will

necessitate the organization of the kind of continuous education that will allow each person to move from one stage to the next throughout his lifetime, undergoing several educational cycles with the same basic principles but qualitative differences in the content of knowledge and the methods of learning.

In our opinion first such cycle could consist of pre-school training and education in nurseries and kindergartens and in each home. By the beginning of 1983 there were 15.1 million children in permanent pre-school establishments. This was almost twice as high as the 1965 figure, although the growth of the total population during this period was measured as only 16 percent. Under these conditions, many children between the ages of 1 and 7 received their initial education in pre-school establishments, and the percentage of children trained in these establishments is constantly rising. It must be said that these years represent the period of the most intensive assimilation of new knowledge. For this reason, it will be important to build the process of this education on scientific foundations so that children can be given the fundamentals of knowledge and a chance to develop their abilities more comprehensively, can learn about the technical equipment surrounding them and can be stimulated to learn new things.

But the main thing is to cultivate an industrious nature and the ability and desire to surmount difficulties in the assimilation of new knowledge. The fundamentals of teaching and of child psychology should be taught to each worker in a pre-school establishment and each young parent; they should be supplied with popular science literature on these matters and with technical toys, training equipment and video equipment. The mass production of video cassettes with children's stories, nature scenes and entertainment and educational games must be organized.

The second cycle will consist of the public school education. This is the most pervasive form of education. In the 1982/83 academic year we had 44.3 million students in general educational schools, including almost 40 million in day schools and 4.4 million in night (or evening) schools. They were taught by 2.4 million teachers.

The currently proposed public school educational reform was outlined at the June (1983) CPSU Central Committee Plenum. During the course of this reform, it will be necessary to change the content of school education, strive for the more balanced study of the fundamentals of the natural, technical and social sciences, increase the relative amount of polytechnical training substantially and determine the exact quantity and type of knowledge required by each individual today, regardless of his chosen profession. Teaching methods and equipment must be renovated, and the academic process must be intensified in the ways specified above. It will also be important to secure the truly organic combination of training with productive labor.

K. Marx believed that children should begin to perform productive labor at the age of 9. "We believe," he wrote, "that the tendency in today's industry to encourage children and adolescents of both sexes to participate in the great work of national production is a progressive, healthy and legitimate

tendency, although it has acquired deformities in the capitalist society. In a rational society, EACH CHILD of 9 should be as productive a worker as each able-bodied adult and should be governed by the common law of nature: He must eat to work, and he must work with his hands as well as his head." He then went on to say: "The distribution of children and working adolescents according to age groups should correspond to the gradual increase in the complexity of mental and physical education and technical training. Expenditures on technical schools should be covered in part by the sale of their products."³ Of course, the working time of children and adolescents should be limited and should be differentiated on the basis of age.

The students of 99 percent of all day secondary general educational schools are offered labor training--at enterprises, on kolkhozes and in inter-school academic-production combines, school shops, laboratories and offices. In the 1982/83 academic year, 4,766,000 9th- and 10th-graders (and 11th) underwent labor training. But it is generally confined to the mastery of the fundamentals of one or two of the simplest occupations by students of only the top grades and it still has little connection with polytechnical training. Although this kind of work is supplemented by meetings in 105,600 children's extracurricular establishments, these have only 2,500 stations of junior engineers and junior naturalists.

Speaking at the June (1983) CPSU Central Committee Plenum, Yu. V. Andropov stressed that "the combination of training with productive labor is quite educational. Firm steps must be taken to make schoolchildren accustomed to useful labor and to cultivate their love for it. This can be physical or mental labor, but it must be real labor--productive labor needed by society. Labor also promotes physical development."

The Chayka Moscow School Experimental Plant, where around 4,000 upperclassmen from 30 schools are working, is an example of the exemplary organization of polytechnical training and productive labor. Their work day at the plant includes an hour of theoretical study (in electronics, electrical engineering, mechanical engineering, automation, materials engineering, production planning and organization and safety equipment) and 5 hours of productive labor in shops (electrical engineering, radio engineering, printing, sewing and others). The students are united in brigades, and there is a brigade leaders' council. Serious labor standards are set, and socialist competition between brigades and shops has been organized. Manufactured goods are sold to consumers. State budget revenues and turnover tax totaled 19.8 million rubles over the last 20 years (with a total sales volume of 42.7 million rubles).⁴

Enterprises of this type (or school shops in production associations and school brigades on kolkhozes and sovkhozes) should exist in each city and each rayon so that students can start working there from the fourth or fifth grade. The tendency toward specialization among the upperclassmen of general educational schools should be intensified so that their graduates will have an elementary professional background (naturally, a sufficiently comprehensive one) and will be able, for example, to operate a motor vehicle or tractor, use modern computers and type and, what is most important, will acquire the skills of collective labor and develop a need for it.

The third cycle will consist of vocational education, signifying the training of personnel for work in the national economy in a chosen specialty. In the 1982/83 academic year, 4 million people were attending vocational and technical academic institutions (including 2.2 million in secondary vocational and technical schools), 4.5 million were attending secondary specialized academic institutions and 5.3 million were attending higher academic institutions. In all, 13.8 million people received vocational training.

The content, methods and technical base of the existing system of vocational education still do not meet all of the requirements of the technological revolution. Qualitative advances are needed. First of all, the time has come to broaden the content of vocational education, abandon the excessively narrow specialty and introduce elements of polytechnical training more boldly. This need stems from the increasing flexibility of production, frequent changes in technology and the related need for workers to master related occupations. In other words, the law of the modification of labor is being manifested more clearly. Secondly, the time has come to gear the content of education and its technological base to the highest achievements of Soviet science and technology, surpassing the level attained in mass production, so that the entry of the production sphere by young specialists will not have even a temporary effect on its continued development in connection with the requirements of the new technological revolution. Thirdly, training in vocational and technical schools, tekhnikums and VUZ's should be organically combined with productive labor. This will require the expansion and modification of production practices and the integration of academic institutions with large modern enterprises, kolkhozes, sovkhozes and scientific research institutes. We already have examples of this. They are the vocational and technical schools of a number of production associations, engineering VUZ-plants, sovkhoz-tekhnikums and the Moscow Engineering and Physics Institute.

The fourth cycle consists in the advanced training and retraining of workers. After a worker receives his vocational education and spends 30 or 40 years working with several successive generations of equipment, he often needs to change his occupation or acquire an additional specialty, and since accumulated knowledge and production skills quickly become outdated under the conditions of a technological revolution, the process of education becomes continuous and extends throughout the individual's working career.

The main form of continuous education for adults is the existing system of training and advanced training in ministries, departments, associations, enterprises and organizations. The scales of this work can be judged from the following figures: In 1982, 36.8 million people underwent advanced training (3.5 times as many as in 1965) and 7.2 million were trained in new occupations and specialties (1.5 times as many as in 1965); therefore, training was undergone by a total of 44 million people, or 38 percent of all the workers and employees in the national economy. Besides this, tens of millions of workers regularly improved their skills by means of self-education, by studying specialized literature and making use of the services of our country's system of scientific and technical information and consultations.

The potential of organized and independent forms of continuous education must be used more effectively. To this end, it will be important to bring the

content of education in line with the latest achievements of the technological revolution, to relate education more closely to professional advancement (so that a rise in professional rank, a change in occupations and a promotion to a higher position will always be preceded by training with a final examination); other requirements include the organization of more and better series of special television programs, the production of a variety of video and audio cassettes, packages of teaching aids and popular books and brochures to aid in advanced training or the mastery of new occupations, and the organization of more lectures under the supervision of the Znaniye Society and technical universities. Finally, the fifth cycle of education should help to involve retired workers in social labor. By the beginning of 1983 there were 52.4 million people, or almost one-fifth of the entire population of our country, living on pensions. Millions of people who reach retirement age have continued to work in their specialty, but many of them change their occupation or become involved primarily in keeping house and tending private plots. They must be helped to adapt to changing conditions and to master new occupations and jobs. This kind of education should be organized at enterprises and organizations (particularly in the service sphere) and in the neighborhoods. This could be the responsibility of local soviets.

For the implementation of a personal training program under the conditions of the new technological revolution, it would be best to draw up a special comprehensive national economic program for the next 10-15 years, which could include objectives in the following fields:

The development of basic and applied scientific research and the elaboration of the general theory, principles and methods of the planned reorganization of the entire system of education with a view to the requirements of the new technological revolution, changing conditions of social development and the continued all-round development of the individual;

The planning of intensive training methods for various stages of a unified educational system;

The allocation of sufficient quantities of resources for the re-equipping of the educational sphere with the aid of the achievements of the new technological revolution on all levels of education--pre-school, school, vocational and adult;

The development and organization of the mass production of fundamentally new teaching equipment and the creation of specialized industries for this purpose with a strong research, experimental design and production base;

The organization of the training and advanced training of instructors for all forms and levels of education with a view to the new principles;

The summarization of progressive foreign experience in education and its technical base, cooperation with CEMA countries in the planning of the reorganization of the educational system and the organization of the joint production of up-to-date teaching equipment;

The establishment of experimental academic institutions for each level and form of education, in which all planned changes in the educational system would be instituted on an experimental basis.

It would be wise to improve the interdepartmental administration of the compilation and implementation of a single comprehensive program for the reorganization of the educational system so that this reorganization can be carried out according to a single set of principles and through the combined efforts of the USSR State Committee for Labor and Social Problems, the Ministry of Education, the Ministry of Higher and Secondary Specialized Education, the USSR State Committee for Vocational and Technical Education, the Academy of Pedagogic Sciences, the Academy of the National Economy of the USSR Council of Ministers, ministries and departments employing specialists and organizing advanced worker training, for the attainment of this major objective of party social policy.

FOOTNOTES

1. V. I. Lenin, "Pol. sobr. soch." [Complete Collected Works], Vol 40, p 215.
2. K. Marx and F. Engels, "Works," Vol 16, p 198.
3. Ibid., pp 197, 198.
4. KOMMUNIST, 1983, No 9, pp 85-86.

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Reorganization of Labor, Production, Management

Moscow SOTSIALISTICHESKIY TRUD in Russian No 1, Jan 84 pp 17-27

[Article by Ye. Smirnov: "Technical Progress and the Organization of Labor"; passages rendered in all capital letters are printed in boldface in source]

[Text] One of the main areas of party social policy during the current stage, as the 26th CPSU Congress pointed out, is the institution of profound changes in the most important sphere of human life--the sphere of labor. Orders have been issued for the improvement and facilitation of working conditions, the provision of extensive opportunities for highly productive and creative work, the achievement of substantial progress in the eradication of significant differences between mental and physical labor and the conversion of agrarian labor into a variety of industrial labor.

All of this will depend largely on technical progress and on the better organization of labor. "The retooling and remodeling of existing enterprises on a much broader scale, their provision with new and highly effective equipment and the introduction of progressive technology and the scientific organization of labor and production must be accomplished"¹--this is recorded in the Basic Directions of the Economic and Social Development of the USSR in 1981-1985 and during the period up to 1990.

Technical Progress and the Better Organization of Labor--A Single Process

The development of equipment and technology have always had a tremendous impact on the organization of labor, given rise to the need for its constant improvement. Even K. Marx was already pointing out the fact that labor is organized and divided in various ways depending on the tools of labor. This connection is particularly apparent in the developed socialist society, in which the possibilities of technical progress and the scientific organization of labor are revealed to the maximum. It was on the strength of the Communist Party's constant and unflagging concern for the development of science and technology that the Soviet Union advanced to the foremost frontiers of progress within a short period of time.

The rapid development of our national economy has been accompanied by the continuous provision of all its sectors with new equipment. During the years of the 9th and 10th Five-Year Plans, more than 38,500 models of new machines, devices, instruments and other equipment were developed in the country, embodying the creative thinking of scientists, engineers, technicians and workers building a communist society. The scales of production mechanization and automation are constantly growing: During the last two five-year plans, the number of mechanized and automated flowlines in industry rose from 1,400 to 172,700, and the number of completely mechanized and automated facilities (sections, shops, production units and enterprises) rose from 49,200 to 97,500.

Even more impressive objectives were set by the 26th CPSU Congress: In accordance with its directives, the rate of equipment renewal was accelerated 1.5-fold. With the aid of scientific achievements, new qualitative advances will be made in devices, machines and mechanisms delivered to sectors of the national economy, and the most progressive technological processes and highly effective methods of processing metal and various materials and articles will be incorporated more intensively.

To amplify the demands of the 26th Party Congress, the CPSU Central Committee and USSR Council of Ministers published a decree in August 1983 on "Measures for the Acceleration of Scientific and Technical Progress in the National Economy." It suggests that USSR Gosplan, the State Committee for Science and Technology, USSR Gosstroy, the USSR Academy of Sciences, ministries and departments of the USSR, union republic councils of ministers, associations, enterprises and organizations bear in mind that within the next few years industries should "secure the manufacture of products whose indicators are comparable to those of the best existing models, the incorporation of progressive technological processes and, on this basis, the substantial augmentation of labor productivity in the national economy." As one of the main guidelines, the CPSU Central Committee and USSR Council of Ministers stipulated the automation of technological processes, envisaging the use of automated machine tools, machines and mechanisms, standardized equipment modules, robot engineering systems and computers. To this end, flexible automated production units and automated design systems must be developed more quickly and incorporated on a broader scale in the national economy.

As mentioned above, technical progress must be accompanied by scientific improvements in the organization of labor. Changes in the technical equipment and technology of production affect primarily the most variable elements of the organization of labor--its division and cooperation, giving rise to a need for the kind of specialization and personnel placement allowing for the use of the new and complex equipment with maximum efficiency. All of this calls for the broader introduction of the brigade form of labor organization, multi-machine maintenance and the combination of occupations. Labor methods, techniques and standards are improved and are invested with new meaning. This is accompanied by higher demands on worker skills and on technical standards because qualitative changes in technical equipment create a demand for comprehensively trained workers with an adequate technical background and the ability to operate modern complex equipment.

Finally, technical progress facilitates labor considerably and improves production conditions. One example of this can be seen in the metallurgical industry, where the remote control of the production process and industrial robots at enterprises have relieved many workers of the need to perform heavy manual labor and be exposed to the harmful effects of excessive heat. Great progress is being made in this field in a number of republics and oblasts. For example, the Latvian SSR initiated the compilation of programs for the comprehensive mechanization and automation of labor processes. As a result of the implementation of this kind of program, 18,000 workers were relieved of the need to perform heavy manual labor in the 10th Five-Year Plan.

When we discuss the impact of technical progress on labor organization, we must not forget that there is a reciprocal connection: The scientific organization of labor leads to technical improvements. The introduction of the scientific organization of labor frequently entails technical changes--changes in the technological process, changes in the design of equipment and the development of equipment for small-scale mechanization and accessories guaranteeing favorable labor conditions. Therefore, technical progress, the introduction of the latest technology and the improvement of labor organization supplement and enrich one another. NEW EQUIPMENT PRODUCES THE MAXIMUM IMPACT ONLY WHEN IT IS COMBINED WITH THE SCIENTIFIC ORGANIZATION OF LABOR. The practice of leading enterprises provides numerous examples of this.

As one example, let us look at the Rybinsk Motor-Building Production Association, headed by P. F. Derunov, renowned in our country as the champion of the scientific organization of labor. Output here increases by 9 percent each year. How does this happen? Above all, it is due to a correct attitude toward the technical development of production. It is no secret that this offers great labor-saving potential, but many administrators have the wrong attitude toward technical renovation. For example, plants often have old shops where the equipment is worn and outdated and where working conditions leave much to be desired. Eventually a decision is made to remodel, but the work is performed in a curious manner--a new shop is built next to the old one, at a high financial and material cost, but the old shop is not dismantled: In simple terms, all that happens is that the plant's production program is augmented. This results in new jobs which cannot be filled. According to the

Scientific Research Institute of Labor, more than a million such jobs were created during the years of the 10th Five-Year Plan.

This practice was subjected to harsh criticism at the 26th CPSU Congress. It was recommended that a higher percentage of capital investments be directed toward the retooling of existing production units because funds allocated for this purpose are recouped in one-third the time of investments in the creation of similar production capacities by means of new construction, and the demand for manpower is simultaneously reduced.

The administrators of the Rybinsk Motor-Building Production Association have made the correct decision: They are not enlarging production areas but are concentrating precisely on retooling and are simultaneously incorporating the scientific organization of labor on the basis of a comprehensive plan drawn up for the 10th and 11th Five-Year Plans. The association uses 85 percent of its capital investments for the acquisition of the latest equipment, while outdated equipment is mercilessly weeded out of shops. For the sake of comparison, we should consider that the proportion of capital investments used for this purpose throughout the country is under 40 percent, while the majority of investments are made in construction and installation; in precisely the same way, the lion's share of new equipment is used for production expansion, and only one-fourth is used for the replacement of obsolete machine and mechanisms.

In addition to the provision of work positions with new equipment, progressive methods of labor organization are continuously introduced in the association, and brigade forms of organization and multi-machine maintenance are being developed. Work positions are served so efficiently that more than 90 percent of the workers in basic production units quickly begin to perform their assigned work as soon as their shift begins, without wasting any time. The combination of all this augmented labor productivity by 83 percent and increased output per square meter of production area by 54 percent during the 10th Five-Year Plan and the first 2 years of the 11th.

Many examples of the highly effective comprehensive incorporation of new equipment and the scientific organization of labor could be cited. In particular, exceptionally energetic steps have been taken in this direction by the AvtoZIL Production Association, the LOMO Production Association imeni V. I. Lenin, the Proletarka Cotton Fabric Combine in Kalininsk, the VEF imeni V. I. Lenin, the Elektroapparatnaya Plant in Gomel and some others whose experience has been widely publicized.

Obstacles Must Be Surmounted More Vigorously

Our success in the acceleration of technical progress and the introduction of the scientific organization of labor is unquestionable, and this has allowed us to continuously enhance the effectiveness of production, carry out social reforms and strengthen and develop the collectivist basis of our society. At the same time, we cannot close our eyes to the serious shortcomings and unsolved problems that still exist. To date, for example, economic managers have often acquired new equipment without taking measures for its correct use

and for the appropriate reorganization of production and labor. As a result, excellent and costly machines and flowlines often stand idle and do not have the necessary impact.

Researchers from the Kharkov University Department of the Economics of Industry surveyed 15 enterprises in Kharkov and collected impressive data. Here the average unit of equipment was operated less than 6 hours a day, and the figure was below 3 hours in some shops of the Elektromashina and Yuzhkabel' plants. The shift coefficient was only 1.14, and intrashift stoppages at these plants took up 32-40 percent of the work day. According to A. K. Gastev's apt description, these enterprises with new but poorly utilized equipment are more like museums for the display of modern machines than like real production units.

Another problem is the low rate of the mechanization and automation of labor processes, particularly in auxiliary operations (but after all, each million rubles invested in the mechanization of auxiliary processes saves 4 or 5 times as much labor, according to some specialists, as an equivalent investment in the mechanization of basic production units).

Report data indicate that relative quantities of manual labor in industry as a whole are decreasing at a rate of only 0.5-0.6 percent a year. If we consider that 40 percent of our workers are still performing manual labor, we naturally wonder how many days, and not years, it will take to complete at least the most essential mechanization and automation work. The sociopolitical significance of this matter is immeasurably, however, and this was pointed out by General Secretary of the CPSU Central Committee and Chairman of the USSR Supreme Soviet Presidium Yu. V. Andropov. In his article "The Teachings of Karl Marx and Some Aspects of Socialist Construction in the USSR," he wrote: "After all, the person who is relieved of the need to perform heavy and monotonous manual labor generally takes more initiative and responsibility for his work. He acquires additional opportunities for study and leisure and for participation in social activity and production management."²

The reasons for this lag are numerous, but the main ones are the absence of the necessary persistence in surmounting the difficulties accompanying the incorporation of new equipment and the tendency of some economic managers to give up the struggle against stagnation and routine, particularly when they are being pressured by the production plan.

A characteristic incident of this nature was reported in PRAVDA, involving the construction of the Dolzhanskaya-Kapital'naya Mine in Voroshilovgrad Oblast, which the Ministry of the Coal Industry had called a "mine of the future" in its project plans. More than 50 (!) research, project planning and design organizations took part in drawing up these plans. The mine was supposed to be a fully automated enterprise with the latest technology, freeing workers from manual labor and securing labor productivity 10 times as high as in other mines in the Ukrainian SSR. The services of several construction and installation organizations and around 50 enterprises were enlisted for the construction of the mine and its provision with the necessary equipment.

What was the result? There is no "mine of the future": After spending 10 years on its establishment, during which it was unable to surmount difficulties in fulfilling the plan, uncoordinated actions by the organizations involved, and the inertia and irresponsibility of many of them, the Ministry of the Coal Industry eventually had to meet the project schedule by starting operations in the first section of the mine with "series-produced" (read: obsolete) equipment and routine technology.

Sometimes the equipment itself is seriously lacking. As speakers pointed out at the 26th CPSU Congress, in some cases the so-called "new" equipment differs little from existing, virtually obsolete equipment in terms of its technical and economic parameters. The manufacture of machines and equipment of this type essentially represents the reproduction of technical backwardness and it costs the state a great deal. Furthermore, it is hardly possible to expect the improvement of labor techniques and methods to produce any kind of impressive results if the equipment used in the work position is a memorial to this backwardness. Serious complaints are being heard more and more frequently about tool manufacturers who produce machine tools without paying much attention to the qualitative requirements of the national economy and the production reorganization aimed at the enhancement of economic efficiency. Let us examine one of the problems this creates.

The machining shops at the majority of plants have a high percentage of universal lathes and other machine tools with manual control. The traditional industrial process in which each machine tool performs only one operation is still being used on a broad scale. In large-series production this produced a perceptible effect, but in modern machine building with primarily small-series production, this technology is no longer progressive because it increases auxiliary work and reduces relative machine time due to the frequent transfer of items from one tool to another, made necessary by the excessive fragmentation of operations. This lowers labor productivity and has a negative effect on machining precision and on overhead costs. Besides this, this kind of fragmentation makes labor heavy (due to the frequent placement and renewal of items) and monotonous. Furthermore, it does not require much skill. It is no coincidence that the job of machine operator has become one of the least prestigious occupations in recent years and that young people with a secondary education are extremely reluctant to enter this profession. This is why more machine-building plants are making the transition to the new machining technology envisaging the concentrated performance of several operations by one multi-purpose, multi-operation machine tool (the so-called machining center). This technology secures a higher level of labor productivity (3-8 times higher) than the old procedure and makes the machine operator's work more meaningful and interesting. The demand for these machine tools is not being satisfied in full, however, and this is slowing down the retooling of machining shops and the introduction of the progressive organization of labor in these shops.

Besides this, the universal lathes produced by enterprises of the Ministry of the Machine Tool and Tool Building Industry often preclude as important a form of labor organization as multi-machine maintenance because they are not equipped with enough interchangeable bits and accessories for the alignment

and stabilization of work pieces and the removal of waste metal. This means that enterprises must spend their own time, effort and resources to improve these tools during operation and to supplement them with the necessary accessories of their own manufacture. The same can be said of machine tools with digital programmed control: The shortage of cutting instruments for these and the limited assortment, poor quality and low durability lead to frequent work stoppages and complicate multi-machine maintenance wherever these tools are installed.

In addition to all this, when new equipment is designed and manufactured without sufficient concern for the health of the people who will use this equipment, it can make working conditions worse instead of better by compounding air pollution, noise, vibration and other negative factors. Sometimes equipment designed to solve one problem, such as heavy manual labor, gives rise to other--monotony, mental stress, hypodynamia, etc. Examples of these negative phenomena have been cited on the pages of SOTSIALISTICHESKIY TRUD and there is probably no need to repeat them.

Therefore, technical progress and the introduction of the scientific organization of labor can entail many difficulties and obstacles. The need for their rapid eradication was stressed at the November (1982) CPSU Central Committee Plenum. In his speech at the plenum, Yu. V. Andropov said: "IF WE REALLY WANT TO MOVE AHEAD IN THE INTRODUCTION OF NEW EQUIPMENT AND NEW WORK METHODS, CENTRAL ECONOMIC AGENCIES, THE ACADEMY OF SCIENCES, THE STATE COMMITTEE FOR SCIENCES AND TECHNOLOGY AND MINISTRIES MUST NOT MERELY PUBLICIZE THEM, BUT MUST ALSO DISCLOSE AND ELIMINATE THE SPECIFIC DIFFICULTIES INHIBITING SCIENTIFIC AND TECHNICAL PROGRESS" (emphasis mine--Ye. S.).

A New Approach Is Needed

At the 26th CPSU Congress, where the basic directions of the economic and social development of the USSR for 1981-1985 and for the period up to 1990 were defined, it was noted that the national economic structure with which the country will enter the 21st century will take shape precisely during these years. "IT MUST EMBODY THE BASIC FEATURES AND IDEALS OF THE NEW SOCIETY, BE IN THE VANGUARD OF PROGRESS AND PERSONIFY THE INTEGRATION OF SCIENCE AND PRODUCTION AND THE INDISSOLUBLE ALLIANCE OF CREATIVE THOUGHT AND CREATIVE LABOR"⁴ (emphasis mine--Ye. S.). This statement is a clear and eloquent presentation of the party's chosen line of organically combining the achievements of the technological revolution with the advantages of the socialist system of economic management and of developing ways of strengthening the ties between science and production.

Authors writing about the advantages of the socialist system frequently stress the fact that the economy in a socialist society is developed on the basis of plans, that a single technical policy is pursued, that socialist competition is organized, that the necessary conditions are established for the display of mass creative enthusiasm, that conscious labor discipline is secured and that special socialist forms of financial and moral encouragement are employed. Of course, all of this is true and all of these factors are used in their entirety for the development of the economy, but these are not the only

advantages of socialism. The main advantage can be found in its very essence-- EVERYTHING IS DONE FOR THE GOOD OF THE INDIVIDUAL AND IN HIS INTEREST. The higher the level of socialist development, the more clearly and thoroughly the advantages of socialism will be manifested and the more pervasive its influence will be on all facets of social life, including productive forces. This means that scientific and technical progress today, under the conditions of mature socialism, is acquiring greater social import by guaranteeing that all of its elements are aimed at the attainment of STRATEGIC SOCIAL AIMS. In other words, social problems are now moving into the foreground, they are becoming dominant and they are determining the directions of technical development and the improvement of labor organization.

Proceeding from this basic assumption, we must now take a new approach to the resolution of problems connected with labor and its organization: We must not simply make isolated improvements; WE MUST FIND COMPREHENSIVE SOLUTIONS, WITH A VIEW TO THE MAIN STRATEGIC GOAL--the transition from socialist labor to communist labor and its gradual conversion into a vital necessity affording physical and spiritual satisfaction.

This also presupposes a qualitatively new approach to the problem of coordinating the scientific organization of labor with the development of equipment and technology. Whereas the previous objective was always the coordination of the organization of labor with new equipment in the production sphere, now this is probably not enough. The equipment itself, just as the technology, should be designed, in our opinion, with a view to the principles of the scientific organization of labor. In other words, it should be geared to creative and meaningful work, the use of progressive forms of organization (the brigade, multi-machine maintenance and the combination of occupations), the elimination of monotony and excessive stress and the creation of the optimal sanitary and aesthetic production conditions. Furthermore, PRECISELY WORDED ASSIGNMENTS, RECORDED IN PROJECT PLANS, SHOULD SERVE AS THE BASIS FOR THIS.

This kind of cardinal reversal in the approach to the coordination of equipment with labor will require the institution of several serious and effective measures to improve the machinery for the management of this process. It seems to us that the most important element of this reorganization, on which its direction will depend, is A CHANGE IN THE SYSTEM OF PLANNING for the scientific organization of labor. The present system, which played an extremely positive role in the development of this work in the 1960's and 1970's, no longer meets today's demands. Now these plans often include assignments regarding the introduction of various isolated measures which are not united in a goal-oriented group and which do not specify precise final results, and this does not bring us any closer to the attainment of the party's objective of instituting profound labor reforms. A more serious defect of the existing planning system, which is particularly apparent in light of this objective, is the failure to reinforce planned measures with the necessary material and technical base and to coordinate measures for the scientific organization of labor with measures for technical development and the improvement of production organization. The fact that they are formally included in the same section as technical assignments does not solve the

problem. We must base our approach to the planning of the scientific organization of labor on the DIALECTICAL UNITY of all elements of the production process--tools and articles of labor and live labor itself.

As an example, let us look at the standard labor organization plans. Each year ministries have set assignments for their introduction, but no one can guarantee that these assignments will be fulfilled because they lack a material and technical base. After all, the production of organizational equipment, which is an integral part of these plans, is not planned at the same time. This gives rise to disparities in the fulfillment of plans--some ministries fulfill them and overfulfill them while others cannot keep up with assignments. The same is true of the introduction of brigade forms of labor organization, multi-machine maintenance, etc.

The scientific organization of labor research programs, compiled for the 11th Five-Year Plan, suffers from similar defects. It represents a list of topics which are not united in a goal-oriented system. These projects are not coordinated with research and development projects involving new equipment and the improvement of technology and production organization.

There is a clear and urgent need for the elimination of these shortcomings in planning for the scientific organization of labor. It appears that the SPECIAL-PROGRAM PLAN indeed could be the solution. The decree of the CPSU Central Committee and USSR Council of Ministers "On Measures to Accelerate Scientific and Technical Progress in the National Economy" acknowledges the need to use it more widely in the sphere of scientific and technical development. Union, republic (and inter-republic), sectorial (and inter-sectorial) and regional scientific and technical programs will begin to be drawn up in the 12th Five-Year Plan, and their basic assignments will be included in 5-year and annual plans. The most important conditions for the fulfillment of these programs will be the allocation of resources and the stipulation of limits on planning-investigative and construction-installation work.

There is no question that the special-program method can also be used effectively in the planning of scientific labor organization. Two approaches are possible. The first consists in including measures pertaining to the scientific organization of labor in state, sectorial and regional programs dealing with various national economic problems. Any program, whether it is a statewide program like the food program or sectorial programs of technical development, is connected with labor and consequently with its organization, and for this reason measures pertaining to the scientific organization of labor will enrich the content of these programs and make them more effective.

In our opinion, the second alternative is the main one--THE DRAFTING OF A MULTIPURPOSE, LARGE-SCALE PROGRAM CONNECTED DIRECTLY WITH LABOR ITSELF AND WITH ITS DEVELOPMENT (THE "LABOR" PROGRAM). The author cannot offer any kind of definitive "recipe" for its compilation. This will require painstaking research, which will probably be undertaken by the scientific research organizations of the USSR State Committee for Labor and Social Problems, the State Committee for Science and Technology and USSR Gosplan. We can hope that they

will also draw up the appropriate recommendations. But I would like to make a few comments about this.

There is no question that it will be an extremely difficult task to draw up an all-encompassing program, covering all problems connected with labor, within a short period of time--these problems are too diverse and multifaceted. But there is no reason to wait, because it would be best to begin by drawing up a few comprehensive scientific and technical programs, each of which would include a group of organically interrelated problems. These could then serve as subsystems of the total "Labor" program. It seems to us that at least four such programs (or subsystems) could be drawn up.

The first would be A PROGRAM FOR THE REDUCTION OF MANUAL LABOR, which was already named in the 25th CPSU Congress decisions as one of the top priorities. It is actually already being drawn up in regions, industries, associations and enterprises. In particular, considerable experience in this work has been accumulated in Latvia, Lithuania and a number of oblasts in the RSFSR. Now all that is needed is to intensify this work and reinforce it with the appropriate procedural and normative materials.

Experience tells us that this program should be supplemented with a new comprehensive PROGRAM FOR THE GENERAL IMPROVEMENT OF LABOR CONDITIONS, envisaging the eradication of other negative production factors. Now that we are dealing directly with the problem of gradually converting labor into a vital necessity, it would be wrong to confine our work to the elimination of only heavy manual operations and to ignore such negative factors as the monotonous, boring and unappealing nature of some types of labor or the unsatisfactory sanitary and hygienic conditions in some fields of production. There is an undisputable need to plan and carry out a special group of measures to eliminate factors with an adverse effect on human health.

The next could be called A PROGRAM FOR THE EFFICIENT USE OF LABOR RESOURCES. A balance sheet of labor resources should be drawn up with a view to demographic changes; employment patterns in various fields should be determined and the provision of enterprises and organizations with manpower should be carried out on a sectorial and regional basis; the number of jobs should be brought in line with the supply of labor resources; numerical standards should be elaborated for worker categories, and this should be used as a basis for setting employment limits for industries, associations and enterprises.

Some elements of this group are being drawn up in various industries even now, but in a fragmented manner, without the necessary coordination. The program exists in its most complete form in the Ukrainian SSR, but our Ukrainian comrades themselves regard it as far from ideal and are still trying to perfect it.

Finally, the fourth program should be aimed at AUGMENTING THE IMPACT OF LABOR. It could reflect problems like the following: the introduction of progressive forms of labor organization (brigades, multi-machine maintenance and the combination of occupations) and of standard plans for the organization of labor and production in sections, shops and enterprises, the better organization

of work positions and the use of progressive systems to serve these positions, and the improvement of labor norms and forms of financial and moral incentives.

Each of these four programs should stipulate precise economic and social goals, results, the deadlines for their attainment, quantitative and qualitative indicators pertaining to each problem included in the program and deadlines for their resolution. Besides this, the program should include everything needed for its implementation (research and investigative projects, technological designs, material and financial resources, organizational measures and informational software).

All four of the scientific and technical labor programs should be drawn up on all levels of management; furthermore, it is important that BASIC INDICATORS BE REFLECTED IN THE APPROPRIATE PLANS. This will simply require the arrangement of these indicators in order of importance and the determination of the particular indicators to be included in the national economic plan, in sectorial (or republic) plans and in the technical, industrial and financial plans of associations and enterprises. In addition, it will be extremely important for all of the appropriate sections of plans (on technical development, material supplies, etc.) to contain assignments aimed at the attainment of specified indicators for each problem. Only this can guarantee the success of the programs.

When the programs are being compiled, there should be none of the hasty decisions, hare-brained schemes or half-baked ideas that are sometimes used to parade involvement in the latest developments. Everything should be based on a strictly scientific foundation. The need to validate these programs and to secure their correspondence to strategic aims presuppose the preliminary compilation of SCIENTIFIC FORECASTS of the development of socialist labor on all levels of planning and the determination of the methods and stages of its conversion to communist labor. The data of these forecasts will serve as a basis for program indicators and for the plans drawn up in accordance with them, as well as for the determination of REQUIREMENTS regarding equipment, technology and production organization.

Changes in the system of planning for the scientific organization of labor must be accompanied by the radical IMPROVEMENT OF THE QUALITY OF LABOR NORMS. Above all, this presupposes the continued improvement of intersectorial requirements and normative materials, which must be taken into account in the design of new enterprises, the remodeling of existing ones, the design of equipment and the development of technological processes. In their present form, they represent a group of quantitative and qualitative indicators of sanitary-hygienic, economic and psychophysiological conditions, as stipulated in state standards, construction norms and regulations and other official documents designed to secure NORMAL working conditions. The failure to meet these minimum conditions is hazardous to human health. But many of the so-called "permissible limits" on individual factors can be hazardous to human health in their entirety or in various combinations (dust, gas, vibration, temperature, ionizing radiation, etc.). Unfortunately, this is not taken into account in normatives. Besides this, now that our aim is dramatic advancement

for the conversion of labor into a vital necessity, we must revise requirements and, consequently, normatives to emphasize OPTIMAL, comfortable conditions, to which end gradual steps must be taken in all areas of production.

This fundamental document must be supplemented with norms securing the meaningful and aesthetic properties of labor and the use of progressive forms of labor organization (brigades, multi-machine maintenance and the combination of occupations). All of the present references to these matters in official requirements are simply general wishes. For example, statements about the brigade form refer only to the POSSIBILITY of using it, and not to the NECESSITY for its use everywhere, and these statements are always accompanied by all sorts of "ifs" and "whens" (see page 159 of the "Requirements"), and this does not correspond to the role assigned to brigades in party and governmental decisions.

Organizational plans for enterprises will also need to be supplemented by requirements and recommendations securing the socialist nature of labor and the cultivation of a communist attitude toward it. This will require the creation of the necessary conditions for energetic activity by each individual in his work position and by labor collectives in general, the development of socialist competition and the exchange of progressive experience and the provision of workers with opportunities for cultural and technical growth and participation in management. In this way, requirements will have a social purpose in addition to their technical, economic and psychophysiological import.

Improvement will also be required in normative technological design documents. They should include elements securing the observance of the requirements of scientific labor organization. They must clearly stipulate that the choice of the best technological design must be based on maximum correspondence to social indicators and scientific labor organization requirements. In particular, this applies to such important documents as the Unified System of Technological Production Preparations in machine building and its components, the Unified System of Design Documents and Unified System of Technological Documents, in which the scientific organization of labor has regrettably not been given sufficient attention.

When we speak of improving the requirements of scientific labor organization which must be taken into account during project planning, we must have a clear understanding that they will only serve as an effective means of coordinating equipment with the scientific organization of labor if they are observed unconditionally by project planners, designers and technologists. This will require, FIRST, that the activities of project planning organizations in this field be supervised daily by ministers and departments; SECOND, that expert appraisals of plans for enterprises, machines and technological processes be improved, for which purpose directives and procedural instructions on these appraisals should stipulate that the most important criterion in the evaluation of plans should be their correspondence to social, ergonomic and psychophysiological requirements, and specialists in the scientific organization of labor should participate in these appraisals; THIRD, that project planners, designers and technologists be provided with systematic

information on the scientific organization of labor because experience has shown that the majority have an inadequate knowledge of this field.

If standard plans are to serve as an effective instrument of the truly scientific organization of labor, they must assign priority to the use of the latest machines, instruments, assemblies and other equipment and to the most progressive technological processes. The compilation of these plans on the basis of existing, outdated equipment and routine technology (and this is what is done in the majority of cases now) puts a heavy financial burden on the state and, what is most important, is a futile pursuit because this kind of standard plan will soon be discarded along with the obsolete equipment. A progressive approach to standard plans for labor organization can only be secured if the designers and technologists developing new equipment take an active part in their compilation.

In precisely the same way, the section pertaining to labor conditions in the standard plan for labor organizations must have their calculations based not on permissible limits of hazardous production factors, but on indicators securing the optimal production atmosphere for human health in terms of sanitary-hygienic and psychophysiological parameters. Here physiologists and psychologists specializing in labor must make the final decision.

Finally, we will end our discussion of standard plans by examining another aspect of the matter, concerning their content. It is probably no longer possible to confine these plans to the "pure" organization of labor, particularly when they transcend the bounds of the work position. Let us take a realistic look at this matter: No matter how hard we try, when we compile standard plans for sections, shops and especially for enterprises, we cannot "extract" labor organization in its pure form--it is inevitably related to other elements of production organization. Therefore, we will not make the mistake of stubbornly hanging on to old procedures and we will move forward to meet the requirements of the present day--STANDARD PLANS MUST BE FULLY COMPREHENSIVE AND MUST COVER THE ORGANIZATION OF LABOR, PRODUCTION AND MANAGEMENT.

In conclusion, I would like to say a few words about organizational matters. The new approach to the coordination of equipment with labor will unavoidably lead to changes in the work of agencies concerned with these problems, especially scientific labor organization centers. Under these new conditions, they will no longer be able to confine their work to the compilation of isolated procedural documents and the issuance of purely informative papers on progressive experience, but must become the MAIN OPERATIONAL HEADQUARTERS for the planning, research, design and incorporation of the scientific organization of labor and production, coordinating and overseeing the work of all of the project planning and technological design organizations concerned. They will be responsible for the planning and organization of the implementation of comprehensive special scientific and technological programs on the development of labor in each sector. Their activity must bridge the gap between the organization of labor and equipment and the organization of production.

All of this will require serious changes in the structure of these centers and the professional skills of specialists working in them. This will necessitate certain changes in the present statute on these centers, and it must be borne in mind that some ministries already have organizations covering a broader field than the customary scientific labor organization centers. For example, the Ministry of the Machine Tool and Tool Building Industry has the Orgstankinprom Institute and its branch in Minsk to oversee work on the scientific organization of labor, Gossnab has a production-technical association responsible for material and technical supplies connected with the scientific organization of labor, the Ministry of the Petroleum Industry has a scientific labor organization center in its All-Union Scientific Research Institute of the Organization and Economics of Petroleum Extraction, etc. The experience of these organizations must be thoroughly investigated so that the best possible structure, corresponding to new objectives, can be chosen and recommended to centers.

Reorganization must also extend to sectorial project planning, design and technological institutes. Here it would be best to create large groups for the project planning of labor organization, made up of industrial engineers, physiologists, psychologists and sociologists. This kind of interrelated and precisely coordinated work by the technical development and labor departments of planning agencies, ministries, departments, scientific labor organization centers and research, project planning, design and technological organizations will guarantee success in the attainment of these objectives.

FOOTNOTES

1. "Materialy XXV s"yezda KPSS" [Materials of the 26th CPSU Congress], Moscow, Politizdat, 1981, p 148.
2. KOMMUNIST, 1983, No 3, p 17.
3. See, for example, the article by N. Kalinina and V. Roik in SOTSIALISTICHESKIY TRUD, 1983, No 2.
4. "Materialy XXV s"yezda KPSS," p 44.

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LABOR

WAGE, LABOR PRODUCTIVITY RELATIONSHIP ANALYZED

Moscow SOTSIALISTICHESKIY TRUD in Russian No 2, Feb 84 pp 7-16

[Article by L. Kunel'skiy, doctor of economic sciences: "On the Mechanism for Regulating the Correlation of Growth Rates of Wages and Productivity of Labor"]

[Text] The principal requirement for continuous, balanced growth of social production is ensuring that growth rates for labor productivity are greater than the rates of increase of average wages.¹ This principle predetermines the dynamic of development of social production, and achieves the proper correlation between production and consumption; and this means, more fully satisfying the continuously growing material and spiritual needs of the workers and the members of their families.

As is well known, in accordance with the precepts of Marxist economic science, an increase in production output per unit of time leads correspondingly to a reduction in the amount of labor expended in repeated production of a product: "An increase in labor productivity means, namely, that the proportion of living labor decreases, and that the proportion of past labor increases; but increases in such a way that the sum total of the labor, which results in a commodity, decreases; and that, as a result, the amount of living labor decreases more than the amount of increase in past labor."²

Factual data on increases in labor productivity confirm that the amount of labor expended in the total volume of production output decreases, and that there is a corresponding decrease in the relative proportion of wages in production costs. In 1957, throughout industry as a whole, wages and deductions for social security amounted to 20.9 per cent of total production costs; in 1970, the figure was already 16.1 per cent; and in 1982, 14.5 per cent. At the same time one should take into consideration the fact that the volume of production growth brought about a 4.9-fold increase in the wage fund for industrial workers and employees during the period analyzed, and on the basis of increased labor productivity, average wages increased by a factor of 2.3.

Growth rates for productivity which surpass the comparative growth rates for wages permit practical solution of a number of the most important national economic tasks:

firstly, to establish the prerequisites for growth of industrial capital investments necessary for the further expansion of production;

secondly, to allocate the resources for further development of the social infrastructure, for the extensive housing and socio-cultural construction program, and for improving domestic services to the populace; that is, on the whole, for capital investments in the non-production sphere;

thirdly, to more fully support increasing monetary income as a whole, and not only wages, with goods and services; and,

fourthly, to develop and improve the quality of various kinds of benefits and services offered to the populace without charge, and above all in the areas of education, health care and culture.

All of these factors in aggregate have an immediate effect on the relationships between the rates of growth of labor productivity and wages: the actual size of the growth in average wages calculated per percentage point of increase in labor productivity, both on the scale of the national economy as a whole and at the level of branch, association and enterprise, depends to a large extent on them.

The current stage of the economic and social development of the country is characterized by a number of peculiarities from the point of view of the objective conditions, which have a direct influence on each of the factors cited, and simultaneously have an influence on the correlation between the rates of increase in labor productivity and wages. Primarily it is a question of policy in the area of capital investments. The more the capital investments are directed toward development of production, the greater the limitation on resources which could be utilized for consumption; and, the more significant the rate at which labor productivity surpasses the rate of wage increases.

One should take note of the fact that at the end of 1982, the value of fixed production assets amounted to more than 1.3 trillion rubles, which exceeded its 1970 volume (in comparable prices) by a factor of almost 2.5. Obviously, at such high rates of growth in the past decade it is especially important at the present time to better utilize the production potential which already exists. Under these conditions new industrial capital construction is limited chiefly by the necessity for appropriate investments in the newly-opened regions. The role of the eastern and northern regions in supplying the entire national economy of the country with fuel, energy and raw material resources is increasing. And it is here that the energy and material-intensive processing branches of industry are being developed. One cannot fail to take into consideration the increasing complexity of the opening up of such regions, their remoteness and uninhabited state, which affects the size of the capital investments required.

At the same time it is no less important to concentrate means and resources on projects under construction, and to speed up in every possible way the assimilation of their production capacities, in order to receive returns from the investments in a shorter period of time, and correspondingly to achieve economies in funds for new capital investments.

Reorientation of capital investment policy also plays a decisive role, in essence, in every region of the country (with the exception of the newly-opened regions), from new construction to reconstruction and modernization of existing associations and enterprises. Resources spent for these purposes, in most cases give returns 2-4 times faster than creating similar production capacities from scratch. Reequipping existing enterprises on a new technical basis permits better use of the capabilities of the production collectives which have been formed, which possess skilled cadres.

It is important everywhere to reequip production with the kind of machinery, mechanisms and instruments which, in terms of their technical and economic indicators, meet the highest world and native achievements; to carry out broad overall mechanization and automation of the manufacturing processes; to establish flexible manufacturing, which can be quickly readjusted to produce new and more sophisticated products; and to introduce on a mass scale unified models of equipment, robot engineering complexes and microprocessors. This will permit eliminating those losses in effectiveness which society bears in cases when newly constructed projects, furnished with new equipment, utilize it only partially, since skilled cadres are lacking--while enterprises which have such cadres utilize obsolete, low-productivity equipment.

The experience of Dnepropetrovsk Oblast, for example, testifies to the possibilities for significantly increasing expenditures for reconstruction and modernization in the total volume of industrial capital investments. At the present time they have managed here to increase this proportion to 46 per cent, which significantly exceeds the indicators of the majority of the other regions of the country.

Furnishing highly productive equipment to industry, and in this connection increasing the output of products per worker, permits improving the correlation between growth rates for productivity of labor and average wages.

As far as non-production capital investments are concerned (funds directed toward housing and municipal construction, and development of the social infrastructure), in the near term and the more so in the long term the expenditures for these purposes will be increased in proportion to the development of the regions in terms of new complex construction developments, as well as as the result of continuous improvement in the housing, domestic, and social living conditions in the regions already opened up. But this construction itself possess very large reserves which have not yet been utilized, and therefore can be the source of savings in all sorts of resources; in other words, savings by virtue of eliminating various kinds of losses, unjustified surpluses, and the like. In addition, it is important to provide more extensive involvement of the assets of the very associations and enterprises, as well as the workers themselves, for construction of housing and development of the social infrastructure.

Also having an influence on the real correlation between growth of labor productivity and wages is the degree to which the increasing monetary income of the populace is provided with goods and material resources. The

more fully they are provided in quantity and assortment, and the higher the quality of the consumer goods, it can be anticipated (other things being equal), that more of the wages will be spent, for each percentage point in the growth of labor productivity. Violation of the state of balance between supply and demand limits the possibilities for increasing wages. If, for example, wages grow so rapidly that they do not correspond to the real growth in labor productivity, then negative consequences are inevitable. As Comrade Yu.V. Andropov indicates: "Without the closest of contacts with this decisive factor, an increase in wages which at first produces an apparently favorable impression, in the final analysis inevitably renders a negative influence on all economic life. Specifically, it gives birth to demands which cannot be completely satisfied at a given level of production, and it hinders elimination of deficit with all of its ugly consequences..."³

In this connection it is difficult to overestimate the significance of implementing measures for improvements in providing the populace with food products, as stipulated in the Food Program; or developing and implementing a complex program for developing the production of consumer goods and the sphere of services. In order for all of these measures to have a positive effect on improving the correlation between productivity and wages, it is important to increase labor productivity in agriculture and in the branches associated with it; to ensure the universal shift to a modern technical base in the manufacturing of products in popular demand, and to radically improve the quality of consumer goods.

Finally, growth in average wages as compared with rates of increase in labor productivity depends directly on the amounts of the social funds intended for use. The source here is one and the same--an increase in labor productivity. It is precisely this that predetermines the possibility for growth in the sum total of consumption in the workers' families, including not only wages, but also payments and benefits from social funds (in a monetary and natural form or free of charge--services in health care, education and the like). Naturally, the more rapidly social funds grow on a per-capita basis or for a single individual occupied in social production, the lower the growth in average wages, and vice versa.

Predominant growth in social funds as compared with monetary wages promotes an increase of their proportion in the total amount of average wages, with the addition of payments and benefits from these funds. Whereas in 1960 they amounted to 25 per cent, in 1982 they amounted to 28 per cent of the average wages.

The expansion and development of social security, including increasing the sizes of pensions and allowances, has an extremely significant influence on the dynamics of these indicators. The number of persons provided social security--children and retired persons--is increasing; moreover, this is taking place against a background of declining growth in the working population. Average annual growth in the number of workers and employees for the first two years of the current five-year plan, as compared with the 9th Five Year Plan, declined by almost a factor of two--while growth in the number of retired persons increased by a factor of 1.4. Whereas the number of children in full-time pre-school institutions increased in the 9th Five Year Plan on the average by 448,000 persons per year, in the period 1975-1982 the corresponding number was 510,000 persons.

Pension support is being consistently improved, and state assistance is expanding for families with children and working mothers. In the first years of the of the 11th Five Year Plan, minimum amounts have been increased for workers and employees for pensions of all kinds (according to age, for invalids, in case of loss of breadwinner), and additional allowances to pensions have been increased for those workers who perform long and faithful service at the same enterprise. Measures have been taken to render material assistance to families with children, and additional advantages and privileges have been granted to women who are mothers. Obviously, measures will be taken in the future as well to improve pension support, to activate demographic policy and the like; and this means, expenditures for these purposes from funds for social use will be increased as well.

The method of distribution of these funds--that is, providing directly for individual use or in the form of monetary payments (pensions, allowances, additional allowances, paid vacations), not only ensures the necessary social justice; one must also take into consideration the important fact that, when applied to a specific worker, the development of funds for social use brings about an increase in the productivity of his labor. In the first place, improvements in general and professional training and in protecting one's health have an influence on the effectiveness of one's labor and the quality of work of those engaged in social production. Secondly, society, in displaying ever-increasing concern for those in its midst who are not capable of working, thereby simultaneously increases the incentive function of wages and their connection with on-the-job performance, since the dependent burden per worker in these circumstance is less.

Of course the advantageous (in terms of rate) development of funds for social use in no way lessens the primary significance of wages; in the foreseeable future it will no doubt be preserved, especially if one considers the necessity for increasing incentives for high end results of work and increasing the effectiveness of labor. In addition, measures for radically reducing the use of manual labor, eliminating unfavorable conditions for performing work, and making it healthier in every possible way--all of these in aggregate will permit increasing the incentive function of wages, above all with respect to productivity of labor and quality of work; and at the same time decreasing the use of wages as a compensatory factor for enlisting people for heavy, unattractive jobs and types of labor activity.

On the whole, all of the circumstances and conditions taken together for the socio-economic development of the country in the future require a comprehensive, scientifically-based and thoughtfully-considered approach to defining and providing the optimal correlation between the growth of labor productivity and wages.

Testifying to the national economic and social significance of the measures directed toward increasing the planned regulation of the most important proportions between rates of growth of labor productivity and wages, are the following indicators from the leading branch of material production--industry (See table):

Growth Rates for Labor Productivity and Wages in Industry
[in percentages]

| Period | Growth Rates | | | | Wage Increase per 1% Increase in Labor Productivity |
|-----------|-------------------------------|-----------------------------------|-------------------------------|-------------------|--|
| | Labor Throughout Period | Productivity Average Annual | Wages Throughout Period | Average Annual | |
| 1971-1982 | 64 | 4.3 | 47 | 3.2 | 0.74 |
| 1976-1982 | 22.7 | 3.0 | 20.9 | 2.8 | 0.92 |
| 1981-1982 | 4.9 | 2.4 | 5.8 | 2.9 | 1.18 |

Significant changes in growth rates of labor productivity and wages also significantly changed the correlation between them. On the whole, from 1971 through 1982 the average annual growth rate for labor productivity amounted to 4.3 per cent. However, as early as the 1976-1982 period it had declined to 3.0 per cent, and from 1981-1982 it amounted to 2.4 per cent in all. As concerns average monthly wages, their rate of growth had also declined, but not significantly. And this led to the situation, where for every percentage point of growth in labor productivity, expenditures for wages increased significantly. Moreover, in the first two years of the current five-year plan, on the whole, growth in wages surpassed the growth in labor productivity. No matter what objective or subjective reasons were employed to explain this, such a situation is unjustifiable, since it upsets the most important proportions in the process of expanded reproduction of the aggregate social product, and can have a negative effect on the standard of living of the populace. Thus, in 1982, as compared with 1981, monetary wages on the whole throughout the national economy increased by 2.8 per cent when at the same time real income calculated on a per capita basis increased by only 0.1 per cent in all. Under these conditions, additional efforts are required in order to guarantee a state of balance in the growth of the workers' income.

In 1983, owing to implementing measures taken in accordance with the decisions of the November (1982) and June (1983) CPSU Central Committee Plenums, for increasing order and the state of organization in production, and for strengthening labor and production discipline, growth rates for labor productivity were accelerated. Moreover, the planned assignments established for this indicator for 1983, were being overfulfilled both in industry as a whole, and in the overwhelming majority of its branches, which became the primary factor in improving the correlation between growth of labor productivity and wages. Presently it corresponds approximately to the estimated correlations stipulated in the plan.

Incidentally, the data cited speak to the fact that a definite mechanism is needed to guarantee correlation between growth in labor productivity and wages. This mechanism should also ensure that changes in the indicators for average wages depend directly upon the rates of labor productivity.

As is well known, since the beginning of the current five-year plan, the practice has been introduced in the majority of the industrial ministries of planning wage norms according to each ruble of value of the manufactured products. The norm is determined according to the very same indicator by which labor productivity is calculated; that is, as a rule, according to the indicator of normative net output (normativ chistoy produktsii--N.Ch.P.). With proper use the normative method provides direct contact between the growth of the volume of manufactured products and changes in the wage funds. However, this method does not provide the required influence on the proportions between the growth in labor productivity and wages. At the same time with all the importance of a definite guarantee of funds for payment of wages in accordance with improvement or decline in the production indicators of the work of the labor collectives as a part of the total volume of manufactured products, maintaining a definite correlation between growth of labor productivity and wages is no less important. A special independent normative is required for this. Therefore, beginning with 1984, along with planned assignments for improving labor productivity, a normative correlation is being established in industry between growth of labor productivity and an increase in average wages.

It is also important to bear in mind, that separate normatives are being used, which determine the total resources in the wage fund, and the independent normatives on which depend the amount of resources in the fund for material incentives; but general normatives according to which the total resources for paying wages would be established, are lacking. And as concerns the normatives which characterize the correlation between growth of labor productivity and wages, these take into consideration not only expenditures from the wage fund, but also bonuses as well as various other payments from material incentive funds. Consequently, with the aid of these normatives the connection between productivity and, in essence, all average wages paid to workers and employees is assured (with the exception of resources for special sources of incentives which do not exceed 1-2 per cent of the total amount of resources for payment of wages to industrial workers).

Normative planning of resources for the wage fund is not used in all branches of industry (normatives are not established for the extraction branches, for metallurgy, and for certain branches of industry in Group B), but normative correlation between growth of labor productivity and wages is being established for all branches of industry, associations and enterprises.

It is natural that the normative correlations are determined in a strictly differentiated manner both for the various branches and within a branch for certain associations and enterprises (within the bounds of general branch correlation). This is connected chiefly with the specific nature of the production and with the large differences in labor expenses for production in various branches. Thus, in 1982 the proportion of wages and deductions for social security in the logging industry amounted to nearly 34.6 per cent; and in machine building and metal working, 22.9 per cent. At the very same time in the textile and food industries it barely reaches 7 per cent, and in a number of its subsectors is even smaller (in the cotton ginning industry, 1.6 per cent; wool, sugar and meat, 4-4.5 per cent).

When defining normatives it is undoubtedly necessary to take into consideration the intensity of the tasks for manufacturing products and the productivity of labor, the degree of influence of labor productivity on the growth of production volumes, and the state of organization and setting of standards for labor. Finally, one cannot fail to take into consideration the factors which determine the growth of wages in this or that branch, such as territorial distribution of the enterprises, average working conditions within the branch, and the like.

Taking into consideration all of the objective circumstances indicated, the normative correlations between growth in labor productivity and wages differ in a significant manner both by branch and by the associations and enterprises within a branch. For example, whereas at the enterprises of the logging and paper industries growth of average wages has been set on the order of 0.7-0.8 per cent for every percentage point of growth in labor productivity, for the majority of the machine-building enterprises it amounts to 0.3-0.5 per cent, and in a number of cases is even less.

Normative correlation provides coordination between the growth of labor productivity and average wages. Let's say that at an established normative correlation of 0.4, in a situation of actual growth in labor productivity of 5 per cent, the increase in average wages amounts to 2 per cent. But if the productivity increases to 7 per cent, then average wages can increase to 2.8 per cent. On the other hand, with growth in labor productivity of only 3 per cent, the possible growth in wages also decreases, correspondingly, to 1.2 per cent.

In cases where a decline is planned in the level of labor productivity already reached (for example, in the extraction branches, when the mineral and geological conditions become worse), and there does not appear to be any possibility to establish normative correlations, evidently an indicator should be used which characterizes the difference between the projected growth in average wages and the planned decrease in the growth rate of labor productivity. If, for example, a 1.5 per cent growth in wages and a 2.0 per cent decline in labor productivity are projected, then the specified indicator will be 3.5. In practical terms this signifies that the differences between the actual rates of productivity and wages should not exceed the 3.5 point. In case they are made greater, the planned normative is violated and the possible growth in wages should be decreased.

In order to provide the capability for systematically controlling how the planned correlations between wage productivity and labor are provided, evidently the appropriate normative indicators should be established not only for the year as a whole, but also distributed by quarters (with a cumulative total from the beginning of the year). And of course, lowering the assignments for the initial quarters must not be permitted, since this would threaten fulfillment of the yearly plan as a whole. In order that the established normative between growth rates of labor productivity and average wages be more strictly upheld, a definite mechanism of economic sanctions is envisaged which would be utilized when these correlations are violated.

Implementing control over observance of the normative are establishments of Gosbank USSR, to which the ministries and departments report in advance along with planned normatives for wages per ruble of production, and also the correlations between growth of labor productivity and wages stipulated in the plan.

Economic sanctions for violating the established normative are utilized if there is simultaneously nonfulfillment of the plan for growth of labor productivity (a cumulative total by quarters since the beginning of the year) and large-scale growth in wages, other than that stipulated by the normative correlations (taking into considerations the actual growth rates of labor productivity). In such situations part of the material incentive fund is not disbursed but held in reserve for the association (enterprise). These means are appropriate when the increase in actual growth of average wages exceeds its allowable growth, proceeding from the established normative correlation and the achieved growth of labor productivity. Thus, the state of dependence between growth of labor productivity and average wages stipulated by the plan is maintained.

If, in the process of implementing the state plan by quarters or for the year as a whole the indicated correlations improve and the normatives are achieved, then the association (enterprise) is offered the opportunity to utilize the funds which have been held in reserve for direct allocations, that is, for payment of bonuses and awards. But if the state of affairs does not improve and the normative correlations stipulated in the plan are not observed, then in accordance with the totals of the fiscal year part of the material incentive funds continue to be held in reserve. At the same time, the associations and enterprises are given the right to transfer these assets to the fund for socio-cultural measures and housing construction. Consequently, in all cases the associations and enterprises are not deprived of the assets which they had previously earned, which make up the incentive funds, but the resources which do not pertain to growth of labor productivity are not part of the financial exchange, and are directed toward housing construction and other social and domestic needs.

The system for providing the planned correlations between growth of labor productivity and wages in no way limits the initiative of the associations and enterprises to achieve economies in the number of personnel. The fact of the matter is, that when the planned volume of work is carried out with a smaller number of personnel, this leads correspondingly to an increase in labor productivity. The savings in the wage fund which are thus accrued can be directed toward incentives for those who carry out a greater amount of work, that is, to those who labor more intensively. Incidentally, the possibilities of such incentives are constantly increasing. For example, workers with a combination of skills who carry out an established amount of work with fewer personnel can be paid additional wages in amounts up to 50 per cent of their wage rate, whereas previously this did not exceed 30 per cent. But in all conditions, growth of labor productivity must surpass the rates of increase in average wages--even though the correlation between growth of labor productivity and wages stipulated in the plan may be violated.

For example, a team of 15 persons has an annual production output of 12,000 rubles per worker; that is, its total production volume for the year amounts to 180,000 rubles. The average monthly wage of each member of the team is 200 rubles, and the annual wage fund is 36,000 rubles ($200 \times 12 \times 15$). Next year it is planned to increase labor productivity by 6 per cent, and average wages by 3 per cent. The normative correlation between the growth of labor productivity and wages is established at 0.5. Thus, the volume of product output according to the plan is increased to 191,000 rubles, and the wage fund, to 37,000 rubles. But if the indicated volume is fulfilled with the relief of one person from the team, then the production output for each of the 14 workers increases to 13,600 rubles, or by 13 per cent. Distribution of the savings from the wage fund among the remaining workers, who will carry out a larger volume of work, leads to increasing their average monthly wages to 220 rubles, which is a 10 per cent increase. Consequently, the correlation between growth of labor productivity and average wages amounts to 0.77 (10:13); thus, it will be higher than envisaged by the normative.

Working with fewer personnel is encouraged in every way. Specifically, it is envisaged that the savings received thereby in the wage fund, or more precisely, the additional payments and allowances paid out on this basis when work is accomplished with fewer personnel will not be taken into consideration when determining the actual correlation between growth of labor productivity and wages which has taken shape.

Nor will they consider bonuses for output of highest quality goods and production of new, improved-quality consumer goods. Finally, when determining the actual correlation which has taken shape, they will not take into consideration bonuses for savings in material resources, which are paid depending upon the savings achieved in material, fuel and energy expenditures. In other words, enterprises may utilize all of their reserves, without misgivings that this might worsen the correlation between the growth of wages and labor productivity.

At the very same time it is also important to stress the increased liability of the enterprises for permitting overspending of wage funds. Overspending is subject to compulsory reimbursement within one year of the time it arises, primarily on the basis of savings in the wage funds of the associations and enterprises, or at the expense of their material incentive funds. And the appropriate measures must be introduced which will promote savings in wages on the basis of reducing the number of workers, eliminating surpluses in the expenditure of resources for wages, and eliminating shortcomings in the organization and normalization of labor. In a situation wherein the material incentive fund of an association is insufficient, the overspending from the wage fund is covered at the expense of the reserves in the wage fund or the material incentive fund at the disposal of the ministries or departments.

On the whole, all the measures implemented in aggregate permit including the most important reproductive proportion in the overall system of planning, which creates at the planning stage the possibility for properly considering the interaction of production, distribution, exchange, and

consumption, ensuring the optimal size of the wage increase for each percentage point in growth of labor productivity, consistent with the concrete economic conditions. Introduction of such a normative permits creating a unified mechanism for regulating an increase in wages on the scale of an industry and its branches.

Thus, in practical planning activities, from now on four groups of normatives will be operating simultaneously: the normative which determines the correlation between the growth of labor productivity and wages; the normative of the amount of wages for each ruble of production; the normative of the amount of wages per ruble of consumer goods produced, as well as the normative for the formation of the material incentive fund. It is important to trace the interconnection of the normatives indicated.

First of all there is the question of the normative correlation of the growth rates for labor productivity and wages on the one hand, and the normative expenditure of resources for each ruble of product volume output on the other. The normative correlation takes into consideration the structure of the factors of growth of labor productivity in the planning period and at the same time determines the possible increase in wage resources both from the wage fund and from the material incentive fund, depending upon the rate of growth of product output per individual worker. Simultaneously, the dynamic of the normative of wages per ruble of product output is to a great extent predetermined. After all, the annual reduction which it stipulates depends upon what kind of growth rates there are in labor productivity and by how much they surpass the increase in wages.

The use of only one normative correlation (growth rates of labor productivity and wages) does not permit considering an increase in the number of personnel when the wage fund is being formed, and most importantly, is not connected with the growth in production volumes. It is the confirmation of the planned normative of wages per ruble of production volume which alerts the associations and enterprises to increase product output. Thus, it is namely the simultaneous utilization of both normatives which promotes the effective development of social production, and increases the national welfare.

Consequently, in modern conditions the normatives examined do not oppose, but mutually complement one another, realizing in practice the dialectical unity of the achievement of high end results of labor, raising its productivity and increasing the dimensions of remuneration for labor. Also serving this task is the use of normatives for formation of material incentive funds, whose connection with fulfilling and overfulfilling the plan in terms of quantitative indicators, and tasks for increasing the effectiveness of work and quality of production, is becoming more intense.

As concerns the normative of wages per ruble of production of consumer goods, it combined with the normative for wages per ruble of product output makes wages in each ministry, union republic, association and enterprise dependent upon the structure of the manufactured product, and promotes not only a state of balance between growth of wages and its commodity-material payment, but is also an effective method for mobilizing additional efforts for expanding production and improving the quality of goods for the people.

Taking into consideration the fact that in contemporary conditions almost 30 per cent of the output of articles for consumption is produced by the enterprises of heavy industry, use of the given normative becomes an important economic lever, which permits influencing the expansion of the range of goods being manufactured, stimulating more complete utilization of the most modern equipment and technology as well as highly-skilled cadres, which are concentrated in the industries of Group A, for production of consumer goods. It is becoming profitable for enterprises to utilize their capabilities to the maximum, in order to expand without losses in the execution of planned tasks for output of basic production of manufactured goods for the people, inasmuch as in this case the normative provides the opportunity to expand the size of the wage funds.

On the whole, the system of normatives which has taken shape permits placing both the amount of the wage funds and the growth of average wages into dependence, first of all on the growth in the volume of manufactured products and improving their quality; secondly on the rates of increase in labor productivity and the factors of this growth; and thirdly, on the structure of the manufactured product and improving the degree to which the monetary income of the populace is covered by material goods.

FOOTNOTES

1. In an article published in the magazine SOTSIALISTICHESKIY TRUD, No 10, 1982, the author examines the theoretical problems of optimization of such proportions. The present article is devoted mainly to a mechanism for its regulation.
2. K. Marx, F. Engel's, "Sochineniya" [Works], 2nd edition, Vol 25, Part 1, p 286.
3. Yu.V. Andropov, "Izbrannye rechi i stat'i" [Selected Speeches and Articles], Moscow, Politizdat, 1983, p 239.

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CSO: 1828/113

LABOR

WAGE INCENTIVES UNDER COLLECTIVE CONTRACTS EXAMINED

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 3, Mar 84 pp 70-74

[Article by V. Zhurikov, candidate of economic sciences: "The Material and Moral Stimulation of Workers Under a Collective Contract"]

[Text] As is known, one of the most important brigade and link work principles in a contract is the use of collective payments for workers based on the final production results in accordance with the quality and quantity of produced items. Of all the systems in effect, the job contract plus bonus work payment system satisfies this principle to the greatest degree since it is based on paying for the workers' labor based on their production.

It is very important to note that this system permits the specific work conditions of not only the farms but also of their intraorganizational subunits (brigades and links) and even of individual workers to be taken into account during the material motivation of the workers. The cost sheets for a unit of production (or its cost expressed in money) for paying the workers for their labor are established by the farm's board of directors -- in agreement with the workers' trade union committee -- usually for each brigade (link) and in individual cases even for a separate worker if he performs some work cycle.

Flowsheets are the basis for calculating the cost sheets. They are developed for each of the crops with a consideration for the distinctive features of their cultivation in the individual brigades and links. In order to compile the flowsheets correctly, it is necessary to have a good knowledge of the technology for growing and harvesting each crop, the machines and mechanisms that are used to perform the technological operations, their building-block principle and productivity, labor norm setting and grouping according to wage scales or rates, and wage or grade categories for paying for the labor of workers in different professions. Without the solution of these questions in conformity with the conditions of a specific farm, it is impossible to calculate sound cost sheets for a product in order to pay the workers for their labor. It is they that are the foundation of the job contract plus bonus system.

It is no accident, therefore, that the job contract plus bonus system is being used with maximum effect on those farms where there are qualified specialists who have a good knowledge of the production conditions and who creatively use

their knowledge to solve questions concerning the organization of production and the incorporation of progressive forms for organizing and paying for labor. The fact that the job contract plus bonus system is being used formally and is not providing the necessary effect on a number of farms is caused to a great deal by the insufficient qualifications of personnel.

The basic conditions and practice of using the job contract plus bonus system are continuously being improved. Fundamentally new propositions, which are aimed at increasing its effectiveness, were defined by the decisions of the May 1982 CPSU Central Committee Plenum. First of all, sovkhoz directors were permitted to establish standard cost sheets for paying the workers for their labor in exchange for plant products. Whereas formally these cost sheets were reviewed annually, they are now adjusted only when there is a change in the level of mechanization, the technologies of production and other conditions on a farm. In such a situation, the stability of the connection between wages and final production results grows considerably over the years.

Brigade and link workers, who work according to the collective contract method, are gaining a great deal from the fact that farm directors have been granted the right to establish cost sheets for a product based on the product production norm. This norm will be determined on each farm based on the area sown and the standard yield of each agricultural crop that is grown by a brigade (link). The standard yield is calculated based on the yield achieved during the previous five years with a consideration for the resources, technology and production conditions which take shape during the year that the production norm is established.

Formerly, cost sheets for products were determined on the basis of the planned indicator for agricultural crop yield. These indicators were often significantly higher than the achieved ones on the farms. This led to the cost sheets for products being put too low and, consequently to a decrease in the workers' interest in production results. Moreover, plans were systematically not fulfilled on a number of farms, and in connection with this, the workers did not receive any additional payments for production at all. This led to a weakening in the stability of payments for labor based on final results.

The fact that farm directors have been granted the right to increase the planned wage fund up to 150 percent, depending on the yield achieved in subunits, in order to pay for the labor of workers in contract brigades and links is aimed at strengthening the connection of the payments for the workers' labor with the amount and quality of produced products.

With the introduction of the job contract plus bonus payment system and of calculating cost sheets based on the standard yield of agricultural crops and with the increase in the wage tariff fund of up to 150 percent, the cost sheets for products will also increase substantially. All this will strengthen the material interest of the workers in the transition to a collective contract.

The effectiveness of the job contract plus bonus payment system is also being increased in connection with the fact that farm leaders have been granted the

right to establish progressively increasing cost sheets for products depending on the level of yield. In order to calculate these cost sheets, it is now possible to combine the assets, which have been provided by the statutes in effect on wages, including an additional payment for high work quality and bonuses. These cost sheets can also remain stable for a number of years. This same procedure for establishing cost sheets is recommended for kolkhozes. We will cite as an example the scale of progressively increasing cost sheets for paying workers for plant products which were stable for the period 1980-1985 and which were established on the Kolkhoz imeni 1 May in Starobelskiy Rayon of Voroshilovgrad Oblast (Table 1).

Table 1. Scale of Progressively Increasing Cost Sheets On the Kolkhoz imeni 1 May

| (1) Урожайность с 1 га, копек | (2) Расчет на 100 копек ед. мон. | (3) Рост | | |
|--|---|--------------------|---------------|--|
| | | (4) Урожайность | (5) Расчет | |
| до 2500 | 41 | 100 | 100 | |
| 2501-2800 | 43 | 112 | 104 | |
| 2801-3100 | 44 | 124 | 108 | |
| 3101-3400 | 46 | 136 | 112 | |
| 3401-3700 | 48 | 148 | 116 | |
| 3701-4000 | 49 | 160 | 120 | |
| 4001-4200 | 51 | 168 | 124 | |
| 4201-4400 | 52 | 176 | 128 | |
| 4401-4600 | 54 | 184 | 132 | |
| 4601-4800 | 56 | 192 | 136 | |
| 4801-5000 | 57 | 200 | 140 | |

Key:

1. Yield per one hectare, fodder unit
2. Cost sheet for 100 fodder units, kopeks
3. Growth, %
4. Yields
5. Cost sheets for products

With the introduction of progressively increasing cost sheets for products, the connection of wages with the yield of the fields and the productivity of the farms is significantly strengthened, the interest of the workers in the final work results is increased, and their confidence grows that their pay will be higher when they produce more and better quality products. Yes, and the labor payment system itself is simplified and becomes more easily understood by the workers. These cost sheets are also advantageous for the farms themselves which usually try during their development to insure an outstripping growth in labor productivity when compared with the payment for it.

Questions concerning the advancing of money are very important for organizing the work of collectives on a contract. Wages are paid to the workers for the amount of work performed or by time rate before the settlements for the products. In those cases where wages are set down to one's account for the

volume of work, that is by the job (plowing, sowing, cultivation, etc.), workers often try to increase output unjustifiably for a shift and for a period to the detriment of quality and divide the work into profitable and unprofitable. Years of experience testify that workers are little concerned about yield when paid by the piece since the basis of their wage is put together, as they say, at the expense of working "from the wheel". This strongly lowers the effectiveness of the job contract plus bonus labor payment system.

When brigades and links work according to the collective contract principle, the main source of compensation for work for each member of the collective is the common final result of joint activity -- the amount and quality of produced products. Before the settlements for the products, two ways to advance money can be employed here -- by the hour (the most progressive) and in the form of collective piece-work payments for a single work detail. The way of advancing money, which is used in each specific subunit, is very important. The time rate advancing of money is more preferable since all of the positive aspects of the collective's work under the contract are displayed clearly and fully with its introduction. In a number of cases, however, it is initially complicated from the point of view of the psychological perception of the machine operators and other workers. That is why the farm directors and specialists must perform a great deal of explanatory work during the introduction of the time rate advancing of money.

The collective piece work payment for a single work detail must be regarded as a transitional form for advancing money to a more perfect one-- the time rate one. In this respect, it is very important that the piece work payment for a single work detail be listed for the amount of work performed not personally for each machine operator or other worker but for the entire collective of workers for the entire amount of work performed by them during this or that period. This collective wage is distributed among the machine operators and other workers in the procedure established by the members of the contract collective themselves. It is only under these conditions that the piece-work payment for a single duty detail can be considered acceptable for the brigades and links that are working under the contract.

Another aspect of the question is also very important -- the establishment of an advance for each member of the contract collective. It is necessary to establish for each one an advance which would conform to his qualifications and contribution to the achievement of the final work results.

Practice shows that many farm specialists and directors are not attaching the required importance to this task and often approach its solution in a simplified manner.

Some directors think that the advance should be equal for all members of the brigades and links since this contributes to the spirit of a collective contract; other ones, on the other hand support a differentiation. Moreover, cases are not infrequent where they do not consider the opinion of the collective's members when establishing the procedure for advancing money and the amount of the advance.

There can be no stereotyped approach when solving this question. With the different qualifications of the machine operators, it is impossible to allow a leveling in payments for labor. In a number of cases, an excessive differentiation in the advance does not bring any benefits. The level of the advance should reflect the amount and quality of the labor which was contributed by each individual member of the brigade (link) to the overall work results. In this regard, it is very important to consider the opinion of the collective's members. This approach should be the basis when determining the advance and when distributing additional payments and bonuses for production at the end of the year.

On farms that adhere to these principles and which have an identical and a different machine operator skill level, the problem of staffing subunits under a contract does not arise.

Thus in Ye. A. Yakovlev's link on the Mir Kolkhoz in Torzhokskiy Rayon in Kalinin Oblast each one is paid an equal advance of 6.1 rubles a day. An equal monthly differentiated advance has been established in A. N. Samoylenko's link on the Rassvet Sovkhoz in the Crimean Oblast. Here, the size of the advance is 100 rubles for the period from December to March; 140 rubles -- in April, May, October, and November; and 160 rubles -- from June to September. On the Kolkhoz imeni the Comintern in Sarayevskiy Rayon in Ryazan Oblast, the size of the advance is different depending on the type of work performed: for repairing equipment -- 3.5 rubles; for transport work -- 3.8, for field work -- 4.8, and for working in combines -- 6 rubles. On several farms, the difference in the advance occurs with a consideration for the brand of the attached tractor or the coefficient and grades that characterize the work of the machine operators considering their knowledge, skills and attitude toward work.

The experience of the Kolkhoz imeni Kalinin in Lysogorskiy Rayon in Saratov Oblast, which has completely shifted in plant growing to work using contract principles, is interesting. Here, the advancing of money to the machine operators takes place with a consideration for the ratings that have been awarded to them. The daily pay for category 3 is 4.6 rubles, for category 4 -- 5.18, for category 5 -- 5.82, and for category 6 -- 6.55 rubles. The highest rating is awarded to a machine operator if he collects 111-125 points under the appropriate conditions; category 5 -- for 96-110; category 4 -- 80-95; and category 3-- for less than 80 points.

A commission, which included an engineer, agronomist, economist, brigade leaders, and individual machine operators, was established to award ratings on the farm after completed studies. The conditions for awarding ratings to machine operators under a collective contract on the Kolkhoz imeni Kalinin in Lysogorskiy Rayon in Saratov Oblast are cited below (Table 2).

The correct use of the job contract plus bonuses system with a time rate advancement of money or in the form of a collective piece work payment before the settlements for the products also insures the required material interests of workers in contract collectives for irrigation in stable farming zones. At the same time, this interest is not maintained in unstable farming zones and in branches where quite a bit of manual labor is still being expended on the

production of products (vegetable growing, etc.). In order to increase the interest of workers in working under a contract in those zones and branches, it is recommended that the cost sheets for products be calculated based on 25 percent of the planned wage fund. In cases that have been stipulated by the standard statute, the wage tariff fund for calculating the cost sheets can be increased up to 50 percent. In doing this, however, a time rate payment or payment for a single duty detail for the brigade (link) within the limits of the wage tariff fund, which has been established according to the flowsheet, should be used before the settlements for the products.

Table 2. Point Rating Factors for Awarding Ratings to Machine Operators on the Kolkhoz imeni Kalinin

| | Points Awarded |
|---|-------------------|
| Classification | |
| I class | 20 |
| II class | 15 |
| III class | 10 |
| Length of Service | |
| More than 10 years | 20 |
| 5 - 10 years | 15 |
| up to 5 years | 10 |
| Can operate tractors | |
| of all types and combines | 20 |
| of all types (except the K-700) and combines | 15 |
| wheeled tractors (type MTZ) | 10 |
| Knowledge of Equipment | |
| any | 20 |
| any (except the K-700) | 15 |
| knows MTZ-type tractors and combines | 10 |
| knows MTZ-type tractors | 5 |
| Attitude toward equipment (period of use and its condition) | 0-15 |
| Agro-economic knowledge | |
| excellent | 20 |
| good-excellent | 15-19 |
| good | 10-14 |
| satisfactory-good | 5- 9 |
| satisfactory | less than 5 |
| Sense of collectivism (mutual help) | up to 10 |

It is necessary to point out that the motivating measures, which were mentioned above, do not completely solve the question of creating the required worker

interest during the shift to a contract in unstable farming zones since, according to the provisions in effect, an additional payment for products can occur only when the plan has been fulfilled by no less than 50-80 percent and not for each obtained quintal beginning with the first one. Specific and appropriate material incentives, which are based on conditions, should be found for these zones.

For unstable farming regions where the workers receive low yields and are deprived of any additional payments and bonuses during frequently recurring bad years, it would be advisable to establish an additional payment for products beginning with the first quintal. This will permit a greater relationship to be established between the payment for labor and its results under the weather conditions of any year and, consequently, work collectives to be stabilized and the increase in the effectiveness of agricultural production to be promoted. Before the settlement for the products, the labor payments to the members of permanent cost accounting subunits must occur in this case using a time rate or a piece rate for a single work detail which is based on the wage tariff fund that has been established on the basis of the flowsheets.

Under modern conditions, the products of the fields and farms are most frequently of all the result of collective labor. The collective system for paying for it must correspond to the collective work. It has been used already for a number of years in plant growing and has proven itself. In animal husbandry, payment for the individual work results of milkmaids, cattle-farm workers and other categories of workers is still being practiced most frequently. In order to increase the interest of animal husbandry workers in shifting to a brigade contract, sovkhos directors have been allowed to establish collective cost sheets for the products that are generally produced by the farm, brigade and link.

One of the most important principles in forming subunits under a contract is the expansion of their independence in solving questions concerning payment for labor. The capabilities for observing this principle now have a solid base. The collectives of brigades and links, which are working under a contract, have been permitted to define -- within the limits of the total that has been set down to their accounts -- the sizes of the incentives for each worker considering his contribution to the overall work results.

Experience shows that the work effectiveness of subunits under a contract depends a great deal on the knowledge, experience and skill of their directors. It is very important, therefore, that specialists direct the brigades in a contract. Now, the rank of I and II class can be awarded to the specialists that head brigades which are functioning successfully under a contract; and, at the same time, an increment corresponding to 50 and 30 percent has been established for the official or maintained pay rate or wage rate.

One of the most important material incentive instruments under a contract is the labor participation coefficient (KTU) which is used in order to consider more fully the individual contribution of workers to the overall work results of the collective. Essentially, this is the summarized evaluation of the work

of each collective member considering his qualifications, attitude toward work and other indicators. A meeting of the brigade collective decides the matter of the advisability of using the KTU when distributing the collective earnings and also the procedure for establishing it in each specific instance.

A base KTU value -- as a rule, equal to a unit-- is established in the contract collective for each worker. This value is adjusted (monthly or upon the final settlement) for each member of the collective during the distribution of the collective earnings for the products based on work indicators, attitude toward work and other items. When establishing a KTU for an individual worker, points (in tenths of the unit), which describe his work, are added to the base coefficient or subtracted from it. Sample KTU criteria are cited below (Table 3).

Table 3. Sample Criteria Increasing or Decreasing the KTU

| Factors | Size of KTU increase or decrease |
|--|--|
| Increasing Ones | |
| Higher labor productivity when compared to other workers or the collective average, expansion of service zones | 0.1-0.3 |
| Combining grades and performing work of different complexity, high work quality | 0.1-0.3 |
| Energetic mastery of new technologies and work methods, streamlining proposals and inventiveness | 0.1-0.3 |
| Conscientious attitude toward work entrusted, irreproachable labor discipline and personal conduct | 0.1-0.2 |
| Solicitous attitude toward allotted facilities (cattle) and equipment, observance of equipment safety rules | 0.1-0.2 |
| Mutual help in work, tutorship and transmission of experience and skills to youth | 0.1-0.2 |
| Decreasing Ones | |
| Labor productivity lower than the collective average | 0.1-0.3 |
| An insufficiently conscientious attitude toward work, cases of labor and technology discipline violations exist | 0.1-0.3 |
| Unsatisfactory conditions of allotted facilities (cattle) and equipment, equipment safety violations | 0.1-0.2 |
| Cases of poor quality work, failure to carry out the instructions of specialists and the brigade (link) leader | 0.1-0.2 |

Usually, in practice the brigades (links) select and establish no more than four-six indicators for adjusting the base KTU by a decision of the general meeting. In accordance with these indicators, it is necessary to take stock of their fulfillment. The brigade council should review the results of this calculation and adjust the base KTU and distribute the collective earnings in

accordance with it. Experience shows that it is also necessary to establish a maximum standard which limits the increase or decrease in the base KTU to no more than 50 percent. The members of the contract collectives should establish the required limits.

The collective contract is most effective when introducing an intraorganizational settlement. In this case, the direct relationship between the award for labor and its final results is supplemented by the principle of comparing expenditures for production with its results. Under the conditions of a brigade contract that is based on intraorganizational settlement, stricter savings conditions are insured, excesses in the expenditure of assets and material resources are not permitted, and the work of the collective is evaluated more accurately and fairly.

Under a job payment plus bonus payment system that is reinforced by effective cost accounting, it is impossible to make unsound adjustments in work volume. The labor payment fund savings, which are obtained by decreasing the number of planned processing stages as a result of the qualitative performance of previous work, should remain completely at the disposal of the collective.

The amount of manual labor in the consolidated sectors depends primarily on the machine operators, their skill and the quality of the work that is performed. In the majority of cases, therefore, it is advisable for brigade and link collectives to produce a single cost sheet by the job, which has been calculated based on the flowsheet considering all the required operations, including manual ones. With a single cost sheet by the job, machine operators are materially interested in reducing manual operations to a minimum, and the saved assets can be distributed among the members of the collective. In the event two cost sheets for the products are used: one for the tractor and machine operators and the other for the workers that are engaged in manual work, responsibility for the amount of work and for the use of its payment fund is removed from the machine operators.

On some farms, there is an excessive interest in every possible type of material incentive which is paid during the year for the performance of different current operations without considering final results. As a result, kolkhozes and sovkhoses, who do not have high production indicators, provide their workers with earnings equal to progressive ones and sometimes even higher. On these kolkhozes and sovkhoses, workers in subunits, which are on the piece work labor payment system, often receive higher earnings than those which use a collective contract. In this connection, it is necessary to strengthen control over the rational use of resources in paying for labor, observing costaccounting principles.

It is necessary to point out that the material incentives, which are now in effect, do not equally interest the different categories of farm workers in shifting to a contract. Thus, sovkhos workers and kolkhoz members are more interested in the effective work of the brigades and links under a contract than the farm directors and specialists. This is caused by the fact that the earnings level of the workers completely depends on production results since

the basic pay for their labor and bonuses are stipulated by the size of the harvest and the productivity of the cattle. At the same time, the farm directors and specialists receive during the year official pay rates which practically are little connected with the work results of the farm during the current year. Only the bonus part of the payment interests them in increasing the effectiveness of the farms' work.

Such a situation undoubtedly has a negative effect on the performance of all the work to incorporate a contract on the kolkhozes and sovkhoses and on the effectiveness of the work of the subunits that are using the new methods for organizing and paying for labor. Evidently, it is advisable in the near future to develop proposals to improve the material interest of the farm directors and specialists in the efficient work of the contract subunits. It seems to us that the entire remuneration -- both the basic and the bonus pay -- of farm directors and specialists should be set up depending on the quantity and quality of products produced.

Under socialism, man works for himself and for the good of his people, and that is why ideological and moral motivations for work as a social duty are being developed more and more. That is why the different forms of moral encouragement are acquiring important significance. Such encouragement measures as the announcement of thanks, the awarding of honor certificates and recording in the Book of Honor and on the Board of Honor, are provided for by labor laws. All of these measures are being widely used to encourage the workers of contract collectives. On many farms, a majority of the members of these collectives have been listed in the Book of Honor and on the Board of Honor because these workers are achieving the best indicators.

Internal regulations define that other moral encouragement measures can also be stipulated on farms. Among them are such measures as the awarding of the title "Honored Kolkhoz Member", "Honored Member of the Collective", "Master of Clever Fingers", and "Best Machine Operator"; the conferring of different types of badges; the presentation of prizes in the name of famous rayon and oblast people; the presentation of various certificates and temporary pennants; and the raising of the flag of labor glory.

In Kalinin Oblast, for example, the oblast agricultural administration and trade union obkom have approved six prizes in the name of Hero of Socialist Labor Ye. A. Yakovlev and A. V. Chistyakov (famous directors of contract collectives) to be awarded to the victors in the socialist competition of the contract brigades and links.

On the Sovkhoz imeni Kuybyshev in the Pukhovichskiy Rayon of Minsk Oblast, the Kolkhoz imeni Gor'kiy in the Atyashevskiy Rayon of the Mordovian ASSR and on the Kolkhoz imeni Komintern in the Nedrigaylovskiy Rayon of Sumy Oblast, flags of labor glory are flying on the central farmsteads in honor of the progressive workers; and salutatory letters from the party committee, local committee and Komsomol committee have been delivered to the victors. Simultaneously with this, local radio broadcasts tell about the shock work, and congratulatory letters and telegrams are sent to family members.

Many other forms of moral encouragement are also being used in the work practices of kolkhozes and sovkhoses with a consideration for local conditions. It is important in connection with this to emphasize that the rights of labor collectives to develop and use the different forms of moral encouragement for the exemplary fulfillment of the labor obligations and socialist duties of the collectives and for productive and exemplary work are not limited by any laws. During recent years and especially since the May 1982 CPSU Central Committee Plenum, the rights of farm directors in material incentive matters have been expanded considerably. It is very important, therefore, to combine material and moral incentives correctly in order to encourage collectives and individual workers who have achieved the best indicators in the work to improve the output of agricultural products and to raise the effectiveness of labor.

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EDUCATION

LEGAL EXPERT DETAILS RULES FOR AFTERHOURS TRAINING

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 1, Jan 84 pp 94-96

[Article by A. Smirnov, senior legal adviser of the USSR State Committee for Labor and Social Problems: "For Those Who Work and Study"]

[Text] The high rate of introduction of scientific and technical progress in our country demands an ever increasing number of skilled personnel. In this connection the Basic Directions for Economic and Social Development of the USSR for 1981-85 and the Period up to 1990 provide for ensuring further development of the public education system, more fuller satisfaction of the country's requirements in specialists and skilled workers, raising work efficiency of all links and forms of education and personnel training, developing and improving evening and correspondence course education and expanding the network of vocational and technical education institutions.

According to the data of the USSR Central Statistical Administration [TsSU], at the beginning of the 1981-82 academic year there were almost 779,000 students in higher and secondary specialized education institutions with "agriculture" as their field of specialization, among whom a considerable number are taking correspondence courses. A large number of young people, including rural youths are improving their general educational level in evening (shift) general education schools.

Educational institutions have established privileges aimed at providing most favorable conditions for workers and employees who combine work with education. Until recently they were set forth in various normative documents. For the purpose of eliminating the multiplicity of decisions on these questions, the USSR Council of Ministers on 24 December 1982 confirmed the Rules on Privileges for Workers and Employees, Combining Work with Education in Educational Institutions (SP SSSR [Collection of Resolutions of the USSR], 1983, No 4, p 13).

The rules provide privileges for workers and employees who successfully study without leave from work at secondary general education evening (shift) and correspondence course schools, vocational and technical education institutions, evening (shift) divisions (in groups) of daytime vocational and technical education institutions, preparatory divisions of higher educational institutions and higher and secondary specialized education institutions in evening and correspondence course studies.

The management of enterprises is required to create for workers and employees, who study at educational institutions without leave from work, the necessary conditions for combining work with education, render them assistance in mastering professional knowledge and skills, allot places for practical work experience and promptly provide the privileges established by legislation.

During a raise in skill categories or promotion at work, the management of enterprises must take into account the general educational and professional training of workers and employees as well as the higher or secondary specialized education obtained by them and adopt measures aimed at most expedient utilization of skills and education of the individuals studying without leave from work. In granting annual leave to workers and employees, who study at educational institutions without leave from work, the management of enterprises, institutions and organizations is required to arrange (according to the wishes of those studying) their leave for the time of carrying out set assignments and laboratory work and taking tests and examinations at an educational institution.

Annual leave to workers and employees, who study at general education evening (shift) and correspondence course schools, may be granted (according to the wishes of those studying) with the idea that the leave can be used before the beginning of studies in schools. Workers and employees, studying at higher and secondary specialized educational institutions in evening and correspondence courses, may be granted annual leave in the first year of work (according to the wishes of those studying) before an elapse of 11 months. The privileges, provided by the rules, are granted to workers on the basis of certificates (summons) which are issued by educational institutions.

Let us dwell in more detail on the privileges which are granted in connection with training at secondary general education schools and vocational and technical educational institutions. Legislation forbids calling in for overtime work during study days of workers and employees who are studying without leave from work at secondary general education evening (shift) and correspondence course schools as well as at evening (shift) vocational and technical educational institutions.

For individuals studying at secondary general education evening (shift) and correspondence course schools, a reduced workweek is established during the academic year period: at working youth schools by 1 workday or a corresponding number of work hours (with a reduced workday during the course of a week) and at rural youth schools by two workdays of a corresponding number of work hours (with a reduced workday during the course of a week). The aforementioned individuals are released from work during the course of an academic year for no more than 36 workdays under a 6-day workweek or a corresponding number of work hours. During the time of release from work, the aforementioned individuals are paid 50 percent of average wages at their principal place of work but not less than the established minimum amount of wages.

In individual cases, when owing to production conditions (seasonal, mobile nature of work and so forth), the individuals, who study at secondary general education evening (shift) and correspondence course schools, cannot regularly use their spare days, supervisors of enterprises, institutions and organizations

may grant them spare days from work in a summed up form (instead of granting these days weekly) during an off-season period or another least busy period in production, but no more than 36 workdays. Aside from this, supervisors of enterprises, institutions and organizations without detriment to production activity may grant during an academic year period according to the wishes of workers and employees, who study at secondary general education evening (shift and correspondence course) schools, 1-2 spare days from work a week without retention of wages. Schedules of reduced workdays, reduced workweeks and spare days from work are confirmed by supervisors of enterprises, institutions and organizations in coordination with trade union committees, Komsomol committees and directors of corresponding schools.

Workers and employees, who study at secondary general education evening (shift) and correspondence course schools, are granted during the period of taking examinations in the 11th grade an additional leave of 20 workdays, and 8 workdays in the 8th grade with retention of wages at their principal place of work calculated on the wage or tax rate. Workers and employees, who study in the 5th, 6th, 7th, 9th and 10th grades of the aforementioned schools, are granted during the period of taking transfer examinations from 4 to 6 spare days from work with retention of average wages at their principal place of work, but in this case the 36 workdays which were granted to a worker during the course of the academic year are correspondingly reduced by 8-12 days.

Individuals who are allowed to take examinations without attending classes for an 8-year school are granted an additional leave lasting 15 workdays, and those allowed to take examinations for a secondary school diploma are granted 20 workdays with retention of average wages at their principal place of work.

Workers who are studying at evening (shift) vocational and technical schools and in evening (shift) divisions (in groups) at daytime vocational and technical educational institutions are granted additional leave for preparing for and taking examinations lasting 30 workdays during the course of a year with retention of 50 percent of average wages at their principal place of work, but not less than the established minimum amount of wages.

Other privileges are granted to individuals who are studying at higher and secondary specialized educational institutions. Workers and employees who are allowed to take entrance examinations are granted leave of 15 calendar days without retention of wages on entering higher educational institutions, and 10 calendar days on entering secondary specialized educational institutions, without counting the travel time to and back from the location of an educational institution.

When using this privilege a question often arises: May such leave be granted to workers who are not entering an educational institution for the first time? Yes, it may be granted if a reference is available from an educational institution on permission to take entrance examination to an educational institution.

Those who study without leave from work in preparatory divisions of higher educational institutions during the period of an academic year are granted

(according to the wishes of those studying) 1 spare day from work a week without retention of wages. For taking of graduation examinations an additional leave of 15 calendar days is granted without retention of wages and without counting the travel time to and back from the location of an educational institution.

Workers and employees who study according to evening and correspondence forms of education at higher and secondary specialized educational institutions are granted additional leave with retention of average wages:

- a) 20 calendar days for the period of established studies, fulfilling laboratory work and taking tests and examinations for those studying in first and second courses according to the evening form of education at higher educational institutions, 10 calendar days at secondary specialized educational institutions and 30 calendar days a year in correspondence course education at higher and secondary specialized educational institutions;
- b) 30 calendar days for the period of established studies, fulfilling laboratory work and taking tests and examinations for those studying in third and subsequent courses according to the evening form of education at higher educational institutions, 20 calendar days at secondary specialized educational institutions and 40 calendar days a year in the correspondence course form of education at higher and secondary specialized educational institutions;
- c) 30 calendar days for the period of taking state examinations at higher and secondary specialized educational institutions; and
- d) four months for the period of preparing and defending a project for a degree (work) at higher educational institutions and 2 months at secondary specialized educational institutions.

Moreover, supervisors of enterprises, institutions and organizations on recommendation of corresponding educational institutions may grant to workers and employees, who study in the final courses at higher and secondary specialized educational institutions, an additional 1-month leave without retention of wages for familiarization directly in production with work of their chosen field of specialization and for preparation of materials for a degree project.

For the period of the aforementioned leave, students and those engaged in studies are enrolled in scholarship on general bases.

The leave in connection with education, depending on the plan of studies, can also be used in parts. However, the overall length of leave must not exceed the period of a given session established by law. The grounds for granting leave is a certificate-summons from an educational institution, which shows the beginning and end of a session as well as the length of leave.

When the leave in connection with education coincides with annual leave, the latter based on prior agreement of a worker with the management is postponed. If a worker or an employee has taken examinations, tests or other assignments according to the education plan of a current session in spare time from work or during an annual leave period without arranging its postponement in advance, then the leave in connection with education for the past session is not granted. This is explained by the fact that educational leave is of a strictly special purpose.

It is necessary to draw attention to the following: if a worker completes examinations or tests prior to the end of educational leave, he must break off the leave and return to work. A disciplinary penalty may be applied against individuals who have used educational leave at their own discretion after completing examinations.

A question often arises in practice on how to grant educational leave to a woman who is on leave without retention of wages to care for a child until he is 1.5 years old. In this case the woman must submit an application for granting her paid educational leave. A certificate-summons to an examination session is attached to the application. Some supervisors require that a woman also show up for work even for 1 day. This requirement is not based on legislation.

The right to additional educational leave is linked to successful fulfillment by a worker of his educational responsibilities. This right is enjoyed by all workers and employees regardless of time worked at a given enterprise. Travel time to and back from the location of an educational institution is not included in the leave period. Leave without retention of wages is granted for this time. Educational leave must go through the formalities and be paid for before a worker's travel for taking tests and examinations.

Workers and employees who study according to evening and correspondence form of education at higher and secondary specialized educational institutions, in the course of 10 educational months before beginning fulfilling a project for a degree (work) or taking state examinations, are granted under a 6-day workweek 1 spare day from work per week to prepare for studies with payment for it in the amount of 50 percent of average wages at their principal place of work, but not less than the established minimum amount of wages.

It is not permitted to add up the aforementioned days, to reduce their number and to increase through this reduction the amount of wages (for example, to grant 2 days instead of 4 days per month with payment in the amount of 100 percent of average wages) as well as to add them to annual leave. According to the wishes of those studying, the management may grant without payment 1-2 more spare days from work per week.

The amount of wages, which is preserved for the duration of leave that was described earlier, is determined on the basis of average monthly wages during the last 12 months of work prior to leave and must not exceed R100 per month for students at higher educational institutions and R80 per month for those attending secondary specialized educational institutions.

Travel to the location of an educational institution (and back) by students at higher educational institutions and by those attending secondary specialized educational institutions and enrolled in correspondence form of education to established studies and for fulfilling laboratory work and taking tests and examinations once a year is paid at the expense of enterprises, institutions and organizations where they work in the amount of 50 percent of the cost of travel by corresponding means of transportation applicable to the order established by legislation on service assignments. Payment for travel for

preparing and defending a project for a degree (work) or taking state examinations is made in the same amount. Workers and employees who study according to correspondence form of education at higher and secondary specialized educational institutions are provided dormitories during the period of preparing for and defending degree projects and taking state examinations.

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DEMOGRAPHY

BOOK ON URBAN DEMOGRAPHIC PROBLEMS CRITIQUED

Moscow *ECONOMICHSKIYE NAUKI* in Russian No 12, Dec 83 pp 104-106

[Review by S. Smidovich, candidate of economic sciences, and I. Gadkova of book "Urbanizatsiya i demograficheskiye protsessy" ["Urbanization and Demographic Processes"] edited by B. S. Khorev and C. P. Kiseleva, *Finansy i statistika*, Moscow, 1982, 237 pages]

[Text] The Soviet Union, as is universally recognized in economic literature, is a country of large cities.* And although their network is very sparse (there are approximately 70 thousand square kilometers per city, which is comparable in size to an average European country), this statement truly reflects the key role of large cities in the population distribution of the country. In large cities (and there are approximately 300 in the USSR--more than in any other country in the world) live more than 90 million people, i.e., 34 percent of all the urban population.

The authors of the monograph under review believe that the large cities "form a sort of long-range standard of development of the demographic processes of the country" (page 7). Therefore, they selected as an object for analysis the demographic processes in an urban environment, although the latter is not limited only to the territory of large cities. "The urbanized environment," the book correctly notes, "is a territory in which a city way of life, peculiar to the population of large cities and agglomerations, predominates." (page 3) It must be considered, however, that there is no definite criteria which might help in a practical way to isolate urbanized territories and agglomerations as units of analysis. As far as small towns are concerned, in the majority of regions of the USSR, the way of life of the population is closer to rural.

The problems examined in the book may be divided into three groups: economic-demographic, purely demographic and those relating to population migration. This division is highly arbitrary. Already in the first chapter of the work, in materials on the cities of the RSFSR (and there are more than 1,000 of them) the interrelationship of all these processes are shown. The influence of the economic specialization of the city (its functional type) on the details of the development of demographic processes is analyzed. In order to do this, a

* In urban science and practice large cities in the USSR are defined as those in which the population exceeds 100 thousand.

functional typology of the cities of the RSFSR was done. The results of this work prove that it is in fact the economic specialization excluding the ethnic (or national) factor which is the basic determinant in the development of the demographic processes in cities. The cities which are characterized by the greatest stability in the course of the demographic processes are the multi-functional centers--the most developed in a series of functional types of cities. (There are 170 of them in the RSFSR.) In such cities, as a rule, there is a more balanced demographic situation. On the other hand, the worst demographic situation is characteristic for towns with local organized centers without a pronounced dominant functional type. (There are 196 of these in the RSFSR.) The demographic characterization of cities of various functional and economic type; which was done permits the authors of the reviewed work to clarify the mechanism of interrelationship between the economic and demographic processes. In this connection we note that, in our opinion, it would have been highly interesting to examine (particularly from the point of view of conducting effective demographic policy) the possible levers of influence on the demographic processes.

Among the many questions examined in the book, most attention was given by the authors to the study of such demographic processes as the natural movement of the population, its age and structure. "A basic feature of the demographic development of large cities of the USSR at the present stage," believe the authors of the monograph, "is the low and dropping natural growth rate of the population and the intensive increase in populations due to migration." (page 49) So far the natural growth index has had a positive value, i.e., the number of births exceeds the number of deaths. (The coefficient of natural growth in 1979 for Moscow was 1.4 percent.) However, given existing tendencies, in the near future a further declining birth rate is highly probable (particularly in cities over a million--see page 51). However, the reader would like to know: is it possible that the declining birth rate will promote a decline in the growth rate of large cities, and that then the necessity to regulate the migration flow into them will lose significance? The authors, in our opinion, should have posed these questions and answered them.

The next characteristic of urbanization in the USSR is the acute aging of the city populations. The intensive migration of working-age people into the city ameliorates this process somewhat, but it far from solves the aging problem. Thus, in Moscow in 1959, the proportion of the population exceeding 60 years of age was slightly more than 10 percent; in 1970 it had already reached 15 percent.

The aging of the population is occurring in a number of large cities in the country. An exception is Minsk (the fastest growing city of a million or more population) and the large cities of Central Asia, characterized by a young age pattern due to a high birth rate. This means, in particular, that in the large cities experiencing a deficient work force, the most acute problem is that of developing a so-called secondary employment, and the overall problem of labor reserves. Unfortunately, the authors do not address these matters, reducing thereby the thoroughness of the analysis.

The sex structure of the population is an essential factor influencing marriage, and consequently, the birth rate. The unfavorable sex pattern of the population

(with the proportion of women significantly higher than the proportion of men) which exists in the majority of large cities, is one of the lasting consequences of World War II. At the present time this primarily affects the older age groups, but it definitely also affects younger age groups as well, due to a higher mortality rate among working-age men in comparison with women. As a result, in the USSR population--including among inhabitants of large cities--the number of women predominate not only among the older age groups, but also beginning with 30 years old, i.e., from the age when the maximum proportion of men are married (see page 59). The unfavorable sex pattern of the population causes an increase in the proportion of single people, who do not become a part of a family. As to the marriage level of large cities, it is significantly lower than among inhabitants not only of rural localities, but of small and medium-sized towns. This is explained not only by the definite imbalance in the sex pattern, but also by the significantly higher divorce rate in the large cities (see page 61), which during the 70's showed a clear trend toward increasing.

Significant attention in the book is devoted to the conditions of life of a family with children in a large city (using data from the survey "Moscow-78," chapter IV). The authors selected families with two children, in which the wives were 35 years old or younger. (In all, 1400 Muscovites were surveyed.) The analysis showed a number of interesting facts about the lives of such Moscow families. First of all, although their total amount of income increased along with an increase in the number of children, expressed on a per capita basis it essentially decreased (from 104 rubles per month at the time of marriage to 70 rubles per month after the birth of the second child). Secondly, the investigation showed that given the general orientation toward two children, women who are more mobile due to their education tend to postpone the birth of their first child to a large extent to a later period. Families in which the women are less mobile in this regard quickly act upon their desire for children (see page 109). Thirdly, on the whole, a negative response was elicited from respondents to the question of the desire not to work at all under the condition that the husband would earn as much as the present combined income. Almost two-thirds (65.1 percent) confirm that they would not agree to quit working under these conditions, and would like in some way to combine family obligations with work activity (see page 112).

On the whole it is clear that if, under modern conditions, society is interested in stimulating the birth rate and in the broadened reproduction of the population, then it is necessary to conduct demographic policy in such a way as to give definite privileges not only to the family with many children (four or more) but also to the family with two or three children (sometimes called the average family). Obviously, following through on such a conclusion is far from simple, since it requires the necessary material and financial resources. The problem consists in directing limited means into the most rational channel, and this will require supplemental research.

The migration processes in large cities is subjected to a detailed analysis in the work. They are growing basically due to population migration: between 1927 and 1969, 57 percent of the growth in city population was due to migration from the village. Taking the indirect influence on the growth of the city

population into account, between 1927-1958, it is estimated that no less than 90 percent of the growth was due to migration (see page 116). Judging from the materials of the 1970 census, the redistribution process of the city population has basically a one-sided character: big and large cities draw to themselves the population from smaller towns. (see page 118).

As a city grows, its attractiveness to potential migrants grows. Given the existing situation the larger the stream of migrants in the large cities, the less the frequency of changing abodes, and the migratory mobility of the population, already concentrated in such cities. For this reason the frequency of moving is reduced in proportion to the growth in the population of the city. Formulating administrative and legal regulatory practices decreases to a certain degree the intensity of the migratory processes, but it cannot change their general character (see page 134).

As the rich analysis of large cities of the RSFSR showed, the intensity of migration of the population in cities to a large extent is related to a general factor, interpreted as the "Prerequisites for the Development of a City." Here, the interdependence of such indicators as the proportion of those employed in construction, the volume of building construction work, capital investment and the proportion of women in the city population can be seen.

In recent times, an essential feature in developing a settlement is determining the degree of transition from primarily extensive to the intensive forms of development of large cities. However, as practice has shown, not all are ready for it. In particular, this is relevant to labor resource policy which is still insufficiently oriented toward a policy of conserving a working population.

What will be the future (in particular, the demographic future) of large cities? Unfortunately, we do not find the answer to this question in the book. It seems to us that, on the basis of the following a course of growth limitation for large cities, which is the recent development trend, we may assume that in the future further slowing in their growth rate will occur, the role of migration in the growth of the population numbers will diminish, and on the whole, the largest cities will make the transition to the rails of intensive demographic development which occurs as a result of inner resources. The limitation of growth of the largest cities should aid the more limited, comprehensive development of small and middle-sized towns, and the system of resettlement as a whole. The gradual decrease in the differences in living conditions of the populations of cities of different sizes should create the necessary conditions for eliminating administrative obstacles in the migration policy now in use.

Of course, in a comparatively small book it is difficult to treat all the problems of urbanization and the demographic processes, and it is even more impossible to do this in a review. However, even from the short list of problems touched upon in the monograph, it is clear that its unconditional value is the

comprehensive character of the research.* The reviewed work will be of great interest to economists, demographers and all those interested in the problems of large cities.

* The reader may supplement the obtained information with publications on this theme, prepared by the Center for the Study of Population Distribution Problems, Moscow State University imeni M. V. Lomonosov: "Problemy urbanizatsii v SSSR" [Problems of Urbanization in the USSR] (Moscow, 1971); "Malyy gorod" [The Small Town] (Moscow, 1972); "Rost gorodov i sistema rasseleniya" [The Growth of Towns and the System of Settlement] (Moscow, 1975); "Krupneyshiye goroda--ikh nastoyshcheye i budyshehe" [Large Cities--Their Present and Future] (Moscow 1979); "Problemy rasseleniya v SSSR [Problems of Settlement in the USSR] (Moscow, 1980); "Rasseleniye naseleniya (osnovnyye ponyatiya i metodologiya)" [Population Settlement (Basic Concepts and Methodologies)] (Moscow, 1981); "Rasseleniye i demograficheskiye protsessy" [Settlement and Demographic Processes] (Moscow, 1983).

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